Smithsonian

December 1984

The elf owl (p. 122): pint-size predator of the Sonoran Desert

REVOLUTIONARIES.

They were revolutionaries from the beginning. Because they were created to be better values than any six-passenger cars you could buy. Last year, for example, they had the lowest sticker prices, the highest EPA mileage rating, the longest warranties, and solid resale records.* They were true revolutionaries—Aries 2-door, 4-door, and wagon.

For 1985, all the practicality under the sheetmetal has remained intact. But *in* the sheetmetal, a lot has changed. And the changes are simply beautiful. Aries now adds a sophisticated new look to a proven tradition of 14 billion front-wheel-drive miles.

But the changes aren't just cosmetic. This year, Aries LE gives you over 40 standard features. Some 73 improvements and innovations—both standard and optional. And, with offerings like the Premium Equipment Discount Package, savings of $225 when you order an AM/FM radio, rear window defroster, power steering, automatic speed control, tilt steering wheel, and other popular options.**

Ask any of over 400,000 American families who've owned Aries what they think. Then ask your Dodge dealer about buying or leasing a new Aries. It's traditional K-car value in a beautiful new style that makes Aries 2-door, 4-door, and wagon true revolutionaries again for 1985.

Dodge

AN AMERICAN REVOLUTION

*1984 6 passenger model comparisons: lowest base and comparably equipped sticker prices; highest mileage – 28 EPA est. mpg, used for comparison, actual mpg varied depending on speed, distance and weather; longest warranty – 5 years/50,000 miles, whichever came first. Limited warranty on powertrain and outer body rust through, excluded leases, deductible applied. Dealer supplied details.

**Aries LE savings based on sticker prices of package items if purchased separately. Ask for details.

BUCKLE UP FOR SAFETY.

Leaps and bounds

Introduced in 1935, the Gazelle Bowl was Steuben's first engraved piece. It is now in many museum collections including the Metropolitan Museum of Art in New York. By Sidney Waugh. Height 6¾". $18,500. Signed Steuben.

Steuben Glass, 717 Fifth Avenue, New York, N.Y. 10022. Major credit cards accepted. You may order by phone: 1-212-752-1441. Out of State: 1-800-223-1234. Steuben is part of Corning Glass Works and has been since 1918.

STEUBEN GLASS

500 years ago, an Italian painter brushed convention aside. Come meet the woman who's out to keep his masterpiece in one piece.

The Last Flower

A painstaking process designed to make "The Last Supper" last. Doctors who hope to harvest a "living pharmacy" before it disappears. A look at Russia's race to rescue a prehistoric horse. And a time when inventive minds begot bedbug traps and pigeon launchers.

All this and a world more await you in "The Last Flower," a Smithsonian World television special airing December 12th on the Public Broadcasting Service. The series host is author and historian David McCullough.

SMITHSONIAN WORLD

A PBS Television Series funded by the James S. McDonnell Foundation. Co-produced by WETA, Washington, D.C. and the Smithsonian Institution.

MCDONNELL DOUGLAS

© 1984, McDonnell Douglas Corporation

A Time for Gucci

Men's & Ladies' Swiss Quartz Watches
18 Karat Gold Plated to 10 Microns
$195 each

AVAILABLE THROUGH
GUCCI SHOPS WORLDWIDE
TO ORDER CALL TOLL FREE
1-800-228-3455
ALL MAJOR CREDIT CARDS ACCEPTED

AMERICAN EXPRESS

© 1984 GUCCI WATCHES
S-12

December 1984

Smithsonian

Volume 15, Number 9

Table of Contents

Cover: Fledgling elf owl (about eight weeks) perches on a prickly pear in Arizona desert (p. 122)
Photograph by Art Wolfe

12 *Smithsonian horizons* by Secretary Adams
16 *Letters to the Editor*
27 *Around the Mall and beyond* by Edwards Park
31 *Picture credits*
34 *Phenomena, comment and notes* by John P. Wiley jr.

44 **Desert nomads of Saudi Arabia**
To the untrained eye, the terrain is drab; to the Bedouin, it is a place of variety and wonder
Article and photographs by Wayne Eastep

60 **Samuel Johnson remembered**
A troubled genius, his immortality has now had 200 years of trial; the verdict is secure
By Israel Shenker

72 **Working sailboats: an endangered species**
Once they carried the world's cargoes, but they are dying out—and the engine is only one reason
Photographs by Neil Hollander and Harald Mertes

84 **Eavesdropping on trees**
Not on "whispering pines" or on "murmuring leaves," but on their chemical early-warning systems
By Jeanne McDermott, illustrations by Robert Osborn

97 **Composers with computers**
Music never stands still, and today it may be a mix of electronics and human performers
By Alan Rich, photographs by Ted Streshinsky

108 **Schussing at Sun Valley**
Averell Harriman, with some help from Steve Hannagan, put the nation on skis—in 1936
By Peter J. Ognibene

122 **Elf owls, North America's smallest**
Tiny they may be, but they are well adapted to life in the hot and hostile Sonoran Desert
By Charles Bergman, photographs by Art Wolfe

134 **James Tissot, up for reappraisal**
Not a great master, he is an engaging lesser one—and his decorative paintings are back in fashion
By Tom Prideaux

146 **Stabled in the Bluegrass**
The sun shines bright on the new Kentucky home of some 400 carvings of famous horses
By Grayce P. Northcross
Photographs by Brian R. Wolff

152 **Mr. Jake vs. the great John L.**
Bareknuckle fights were illegal in 1889, but they went 75 rounds that way for the world title
By James A. Cox

170 *Book reviews*
178 *Additional reading*
180 *December events at the Smithsonian*
186 *Smithsonian tours*

188 **The peacock's 'I'**
By Timothy Foote

Smithsonian (ISSN 0037-7333) is published monthly
by the Smithsonian Associates, 900 Jefferson Drive, Washington, DC 20560.
© Smithsonian Institution 1984. All rights reserved.
Reproduction in whole or in part without permission is prohibited.
Subscription price $18 a year in U.S. possessions, $28 elsewhere.
80 percent of dues is designated for magazine subscription.
Single copy price $2.50. Second-class postage paid at Washington, DC.
Editorial offices, 900 Jefferson Drive, Washington, DC 20560.
Advertising and circulation offices at 420 Lexington Ave., New York, NY 10170.
Members: Please address all subscription correspondence and change of address information to P.O. Box 2955, Boulder, CO 80322.
Postmaster: Send 3579s to P.O. Box 2955, Boulder, CO 80302.

Some presents are more gifted.

E&J® Brandy.
The taste worth toasting.

80 Proof Brandy.
E&J Distillers, Modesto, CA

Buy a Subaru. Or get stuck with something else.

Seat belts save lives.

© SUBARU OF AMERICA, INC 1984

You should know right from the start that a Subaru is not your average, everyday car.

In fact, in a world of automotive "sameness," Subaru is truly different.

When Subaru began building cars there were no concepts to conform to. No outmoded components to modify. And no tracks to follow in.

As a result, Subaru technology has left other automakers miles behind.

For example, long before it was fashionable, Subaru introduced the first full line of cars with the superior road handling ability of front wheel drive.

Subaru also equipped all of their cars with a horizontally opposed engine. What this means is less vibration for a smoother, more comfortable ride. And a low center of gravity which helps improve stability and handling. And unlike other car makers, Subaru designed its engines specifically to serve as power plants for front wheel drive cars.

The four wheel drive factor.

It doesn't take an Einstein to figure out when you increase traction you increase safety. And yet that simple fact has eluded many of the industry's leading automakers.

Subaru, on the other hand, has spent several years pioneering front wheel drive and the next logical step, four wheel drive.

In 1975, Subaru introduced the "On Demand" four wheel drive system (the ability to switch from front to four wheel drive in an instant, without stopping).

Simply put, "On Demand" four wheel drive cars give you an extra measure of safety and traction for superior driver control and handling on practically any road, in any weather condition.

Since then Subaru has taken four wheel drive down more roads than any other car maker with such innovations as Dual Range,™ four wheel drive with automatic transmission and Turbo Traction.™

In fact, Subaru is so committed to four wheel drive that now we have the only full line of "On Demand"™ four wheel drive cars in America.

That includes the Station Wagon, Four Door Sedan, Hardtop, Hatchback, and Brat.®

The new Subaru.

This year marks a styling change for Subaru. For 1985, the cars are larger. More aerodynamic. And more luxurious. You'll also discover more leg, hip and headroom. And an impressive 25% more cargo space in the Station Wagon.

Subaru also gives you a greater freedom of choice in transmissions and engines.

For example, you can select a model with multi-point fuel injection or fuel injection combined with turbo.

But regardless of the model you choose, you can be assured of getting more horse power and greater performance.

But even with all those changes there are some things that will never change. And that's the heart and soul of what the car is.

From the very beginning Subaru engineers have been dedicated to building the world's most dependable cars at an affordable price.

And as a result, every Subaru, no matter how technologically advanced or how elegant, still comes with these three standard features: Durability, reliability and economy. Which means Subaru isn't just inexpensive to buy, it's inexpensive to drive. And that's the true test of a car's value.

One of the most satisfying cars in America.

According to a recent survey by an independent research firm, Subaru was ranked second only to Mercedes-Benz in customer satisfaction. Better than Toyota, Honda, Mazda, Nissan, BMW and any car built by GM, Ford or Chrysler.

So if you're considering purchasing a new car, consider the car more people are satisfied with. Subaru. Or consider the option of getting stuck without it.

THE 1985 SUBARU®

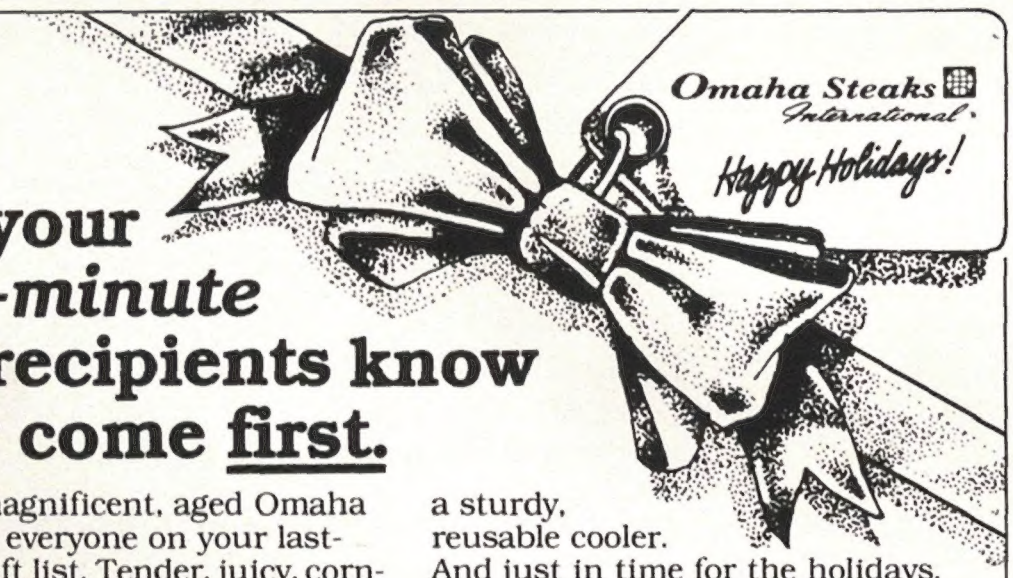
Inexpensive. And built to stay that way.

Young Giraffe

Traditional Bronze — Light Skin Patina
Size: H-13½", L-19" (to tip of tail), W-17"
Limited Edition

Price $4,000.00

Through the artist
H. L. Bowen
10 Cedarwood Drive, Greenwich, CT 06830



Let your *last-minute* gift recipients know they come first.

Send magnificent, aged Omaha Steaks to everyone on your last-minute gift list. Tender, juicy, corn-fed beef — the perfect gift for family, friends and business associates.

Call right away, and we'll deliver your order of insta-frozen steaks in a sturdy, reusable cooler. And just in time for the holidays. Complete satisfaction guaranteed. **Order by December 8th, to assure delivery in time for the Yuletide Season!**

Holiday Special —*Limited offer*

Six 6 oz. Filet Mignons, 1¼" thick
Save $23.00 (reg. $52.95) ..... **NOW $29.95**
(plus $4.00 shipping)

SAVE EVEN MORE!

Twelve 6 oz. Filet Mignons,
1¼" thick, ... **ORDER NOW $58.95**
(plus $4.00 shipping)

Valid in 48 states until December 31, 1984.
Use major credit cards and... Call FREE 1-800-228-9055
In Nebraska, call COLLECT 0-402-391-3660
Operators are standing by to take your order. Ask about other exciting last minute gift specials!

Omaha Steaks International®
Dept. 1357, P.O. Box 3300, Omaha, Nebraska 68103

Smithsonian

SECRETARY OF THE SMITHSONIAN INSTITUTION:
Robert McC. Adams

EDITOR:
Don Moser

EXECUTIVE EDITOR:
Ralph Backlund

BOARD OF EDITORS:
Jim Doherty
Timothy Foote
Bennett Schiff
Nancy Seaman
Paul Trachtman
John P. Wiley jr.
Caroline Despard, Pictures

ASSOCIATE EDITORS:
Constance A. Bond
Frances R. Glennon
Marlane A. Liddell
Jane D. Scholl
Edgar Rich, Pictures

ASSISTANT EDITORS:
Diane M. Bolz
Kathleen M. Burke
Allan Chen
Judy Harkison
Vivian Noble
Jane G. Sweeney

EDITORIAL ASSISTANT:
Charlene Mason

CONTRIBUTING EDITORS:
Edwards Park
Richard L. Williams

PUBLISHER:
Joseph J. Bonsignore

CIRCULATION:
Anne Keating, Associate Publisher
Adeline Sherr
John O'Donnell

ADVERTISING:
Thomas H. Black, Associate Publisher
Edward Daly
Lewis P. Ogle

GENERAL MANAGER:
Carey O. Randall
Mary Ellen Bobb

PRINTING AND DISTRIBUTION:
E. Cherry Doyle

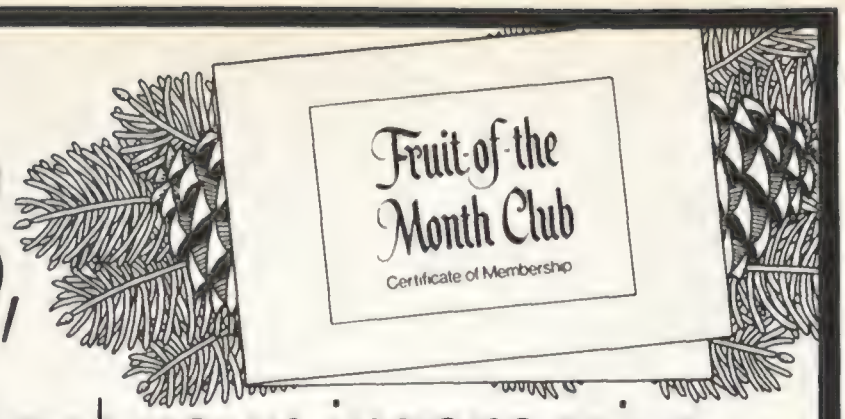
PRODUCTION:
Ruth Ravenel
Mary D. Haskin

CONSULTANT TO THE SECRETARY:
Edward K. Thompson

FOUNDER:
S. Dillon Ripley

© 1982 Clinique Laboratories, Inc.

YES,



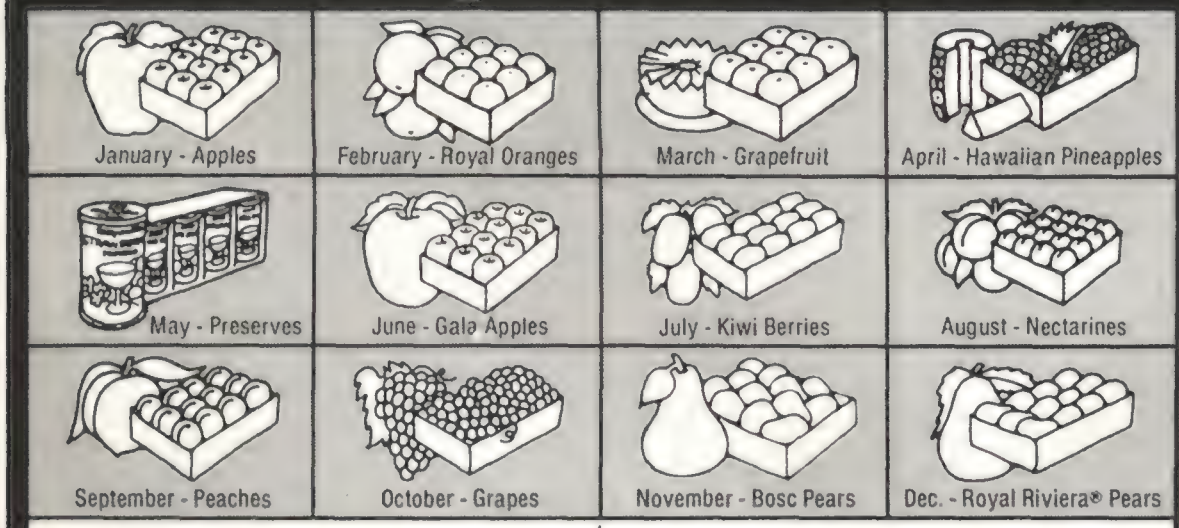
they'll get your impressive membership certificate in time for Christmas...

Call FREE 800-547-3033*

YOU CAN ORDER — RIGHT NOW — THE FAMOUS FRUIT-OF-THE-MONTH CLUB BY PHONE! And what a gift! Month after month, the world's finest fruit, starting in January with Crisp Mountain Apples and continuing with a whole parade of gorgeous gift boxes — all announced by a handsome gold-embossed certificate with your name shown as sender, priority mailed to arrive in time for Christmas.

Call TODAY — our toll-free line is open every day from November 19 to December 31 including Sundays (except Christmas and Thanksgiving) from 6 am to 8 pm Pacific Time. Use your VISA or MASTERCARD, or send your check by January 2.

The Original, One-and-Only **Fruit-of-the-Month Club®** The Gift That Keeps On Giving



3-BOX CLUB Order No. 112...**$39.95** delivered
Surprise 'em with gorgeous gift boxes for January, February and March!

5-BOX CLUB Order No. 142...**$64.95** delivered
Keeps coming and coming — January, March, May, July, September.

8-BOX CLUB Order No. 152..**$106.95** delivered
Delight 'em to pieces again and again. Jan., Feb., March, May, July, Aug., Sept., Nov.

12-BOX CLUB Order No. 202..**$161.95** delivered
Flabbergasting. A gorgeous gift every single month of the year.

IMPRESSIVE — AND EXCLUSIVE, TOO. Not one person in 1000 ever gets such fresh-from-the-orchard gifts. They're just not available in any store. And as for quality, it's guaranteed: You, and those who receive your gifts, must be completely pleased or we'll make things right. That's a promise.

AND IT'S SO EASY! Call 800-547-3033* . . . it's **TOLL FREE.** Give us your list of names and we will priority mail for Christmas arrival the gold-embossed Certificate of Membership with your name shown as sender, inscribed as you direct on the first inside page. Following pages describe *each* gift shipment to come, beginning early in January . . . and each handsome gift package also carries your personal greetings.

*From within Oregon dial 800-452-3028. From Alaska or Hawaii dial 800-547-1492.

Harry and David®

Dept. 57, Medford, Oregon 97501

Visit the Bear Creek Store in Medford

©1984, Harry and David

Smithsonian

Board of Regents
Smithsonian Institution

Ex Officio
Chief Justice of the United States
Warren E. Burger, Chancellor
Vice President of the United States
George H. W. Bush

Appointed by the President of the Senate
Honorable E. J. (Jake) Garn
Honorable Barry M. Goldwater
Honorable James R. Sasser

Appointed by the Speaker of the House
Honorable Edward P. Boland
Honorable Silvio O. Conte
Honorable Norman Y. Mineta

Appointed by Joint Resolution of Congress
Honorable David C. Acheson
Honorable Anne L. Armstrong
Dr. William G. Bowen
Mrs. Jeannine Smith Clark
Dr. Murray Gell-Mann
Honorable A. Leon Higginbotham jr.
Mr. Carlisle H. Humelsine
Mr. Samuel C. Johnson

National Board of the
Smithsonian Associates

Mr. W. L. Hadley Griffin, Chairman
Mrs. Joe L. Allbritton
Mr. Arthur G. Altschul
Mr. Perry R. Bass
Honorable Lucius D. Battle
Mr. William W. Boeschenstein
Mr. Frank T. Cary
Mr. James H. Clement
Mr. David L. Coffin
Mr. Charles D. Dickey jr.
Mrs. Robert Donner jr.
Mrs. Avery C. Faulkner
Mr. Marshall Field
Mr. Gordon Hanes
Mr. John F. Harrigan
Mrs. Parker T. Hart
Mr. Richard D. Hill
Honorable Carla Anderson Hills
Mr. Seymour H. Knox III
Mr. Howard M. Love
Mr. Brooks McCormick
Mr. Alexander K. McLanahan
Mr. Arjay Miller
Mr. Charles H. Murphy jr.
Mrs. George M. Seignious II
Mrs. Edson W. Spencer
Mr. Malcolm T. Stamper
Mrs. E. Hadley Stuart jr.
Mrs. Peter Wray

Honorary Members
Mr. William S. Anderson
Mr. Richard P. Cooley
Mr. Joseph F. Cullman III
Honorable Leonard K. Firestone
Mr. Alfred C. Glassell jr.
Honorable William A. Hewitt
Mr. James M. Kemper jr.
Mr. Lewis A. Lapham
Honorable George C. McGhee
Justice Sandra D. O'Connor
Mr. Francis C. Rooney jr.
Mr. Merritt Kirk Ruddock
Honorable Thomas J. Watson jr.

Cooking's fun with Litton's finest.

Exterior Size:
24" wide
18½" deep
13 15/16" high

Chances are you have some experience in owning and enjoying the best. Consider, then, the enjoyment you can get out of Litton's best microwave oven, the Generation II.™

This is an excellent cooking appliance. Cooks so well, it was awarded the American Culinary Federation's Seal of Approval, for outstanding cooking performance.

Litton's Multi-Wave™ cooking system cooks so evenly, you don't have to rotate the food.

Each Generation II has a large 1.5 cubic foot oven. Its Meal-In-One® allows you to cook complete meals *in minutes, not hours.*

Model 2090, shown above, has the features you've always wanted to fully exercise your cooking ability. Deluxe Electronic Touch Control, featuring Auto-Cook; a cooking system that guides you through oven setting step-by-step, then automatically determines the correct cooking times, variable power settings and cooking cycles for excellent cooking results.

Why not let a Generation II and a nearby Litton dealer bring out the gourmet in you?

Nobody knows more about microwave cooking than **Litton.**

THE LITTON GENERATION II™ MICROWAVE

© 1984 Litton Systems, Inc.

Presenting a camera with the human eye than See.

The pictures you see here are actual unretouched photographs, shot simultaneously without any exposure compensation.

High contrast. Shot in Aperture-Priority with the Nikon FA.

Back light. Shot in Programmed with the Nikon FA.

Shot in Aperture-Priority with a leading multi-mode SLR camera.

Shot in Programmed with a leading programmed SLR camera.

The Nikon FA. The biggest advance in automatic photography since automatic exposure.

Until now, the metering system of any automatic camera could do just one thing. Measure light and give you a technically correct exposure.

But as any photographer knows, a technically correct exposure doesn't always give you the best picture.

That's why Nikon developed the FA. The first camera with AMP (Automatic Multi-Pattern) metering. AMP is the only metering system that can automatically give you optimum exposure, not just technically correct exposure, even under extreme lighting conditions.

So what you see in your pictures is a lot more like what you saw with your eyes.

How AMP works.

AMP metering divides your picture into five segments and then individually measures and compares each segment, evaluating such factors as contrast ratios, variations in brightness levels and percentages of light and dark areas.

It then processes this information in its own Nikon microcomputer, comparing the components of your picture with those of nearly 100,000 photographs programmed into its memory, and instantly

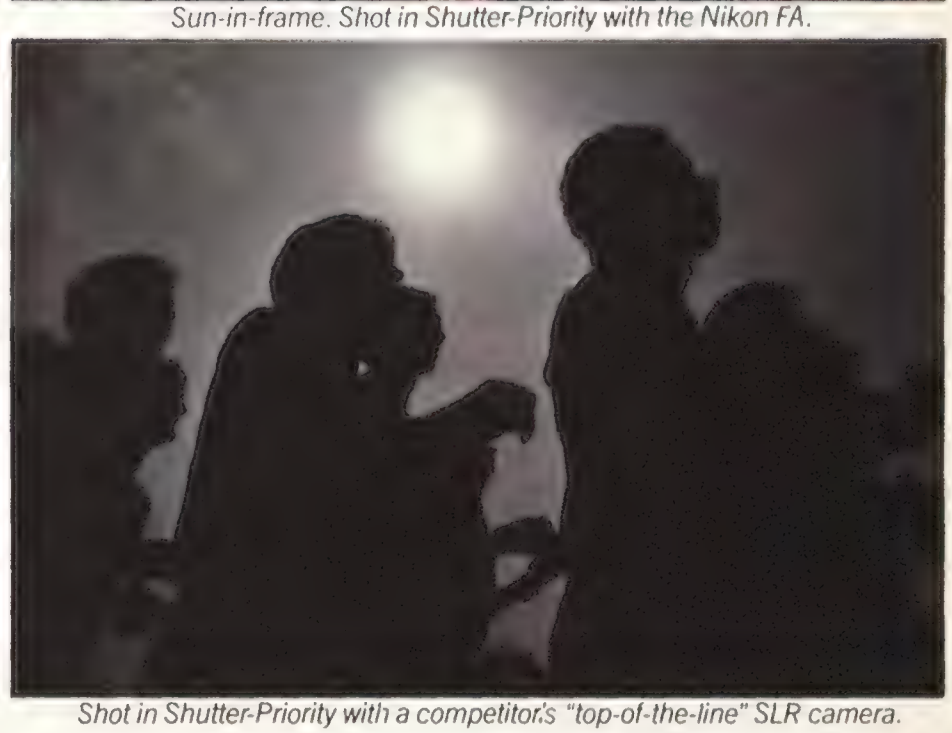
that has more in common with other cameras.

© Nikon Inc. 1984.

Available light. Shot in Programmed with the Nikon FA.

Sun-in-frame. Shot in Shutter-Priority with the Nikon FA.

Shot in Programmed with the biggest selling SLR camera.



Shot in Shutter-Priority with a competitor's "top-of-the-line" SLR camera.

chooses the optimum exposure.

The FA gives you more choices than any other camera.

Shoot in the Dual-Program mode and the camera does it all for you. With one program for normal and wide-angle lenses and a high-speed program for Nikon AI-S and Series E lenses, 125mm and longer.

Or switch to Shutter-Priority. With the FA's top shutter speed of 1/4000 of a second, there's not much you can't catch.

If you're most concerned about controlling the sharpness of foreground and background, Aperture-Priority is at your command.

And of course, you can also take full creative control in Manual.

Add other Nikon options, too.

When you shoot with the FA, you can take advantage of the most advanced photographic system in the world.

Use a Nikon motor drive and shoot up to 3.2 frames-per-second.

Or attach a variety of Nikon Speedlights to activate the FA's automatic TTL (through-the-lens) metering system, and shoot flash pictures at sync-speeds up to 1/250 of a second.

The FA is also compatible with all current and many older Nikon lenses, and a full range of Nikon accessories.

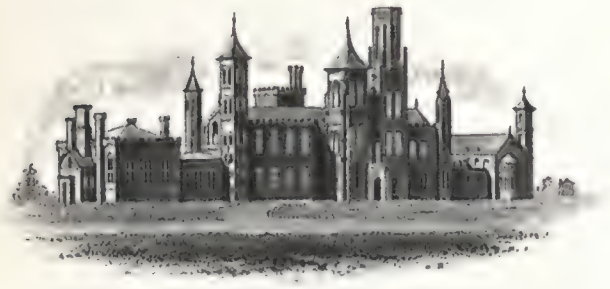
To find out more about the kind of pictures the FA can take, write to Nikon Inc., Dept. 55, 623 Stewart Ave., Garden City, N.Y. 11530.

Or better yet, just use your eyes.

Nikon®

We take the world's greatest pictures.®

Smithsonian horizons



The Institution's facilities in Panama are uniquely suited for research on an urgent problem—the destruction of tropical forests

The Smithsonian Tropical Research Institute (STRI) in Panama is and will remain—at least until the Quadrangle under construction outside my window is completed—our most direct and important contribution to the world of international scholarly and scientific collaboration (SMITHSONIAN, August 1975; November 1979). We're proud of STRI, and we want it to flourish. It illustrates why long-term, broadly conceived research programs may seem a luxury but frequently become an unexpected blessing.

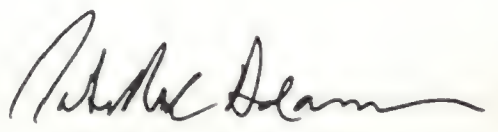
As we enter the mid-1980s, tropical deforestation is among the most massive and urgent environmental problems that we face. These forests are biologically the richest of the Earth's environments, providing habitats for more than half of our planet's entire stock of plant and animal species. Yet they are disappearing at a frightening pace—50 acres per minute, according to one estimate. At that rate, half or more of all tropical moist forests existing today will have been destroyed before the end of the century. The effects—on climate, on the vital pool of genetic variants, on the scientific understanding of life processes, and on the people who will be left to fend for themselves in the vast degraded areas—are likely to be almost incalculably destructive.

There is no real mystery about the pressures responsible for this impending calamity. Population growth brings an expansion of the frontiers of subsistence agriculture. Metropolitan centers and the developed countries escalate demands for the even more wasteful production of beef and tropical hardwood. For all of its immense diversity, tropical forest life exists on a slender margin of resources. Most nutrients are tied up in the trees themselves, and are quickly leached when exposed to torrential rain and direct sunlight by removal of the forest canopy. Restocking of these nutrients may take scores of years, or even centuries. It is currently thought that tropical forests are not the endlessly reconstituted units that their appearance might suggest.

Here is where STRI's research efforts at Barro Colorado Island (BCI), and at other sites throughout the world, can play a role that was not originally anticipated. BCI is one of the very few well-studied, long-maintained, truly protected areas of neotropical forest. As such, it provides unique baseline information on climatic fluctuations, on plant growth and reproduction, and on the truly incredible diversity of tropical plant and animal species.

How is that diversity maintained? How are the very limited soil and other resources divided? How are niches partitioned so that species can coexist? How are the sensitive balances continually readjusted between prey and predators? Or, of even more immediate human interest, are there ways in which subsistence needs of the population can be met that do not involve forest destruction?

There are no quick fixes. We need to retain a multiplicity of approaches. We need to locate our own efforts within a secure and amicable framework of international scientific cooperation. I hope you are as gratified as I am to learn that STRI has been moving in these directions for several decades.



ing Auspicious Balanced Balletic Beautiful Blue-blooded Boundless Breathtaking Ca
tting Celestial Celebrated Charismatic Civilized Comely Comfortable Commendable Compo
ent Conspicuous Consummate Contemporary Controlled Daring Dashing Dauntless Deb
ous Definitive Dexterous Direct Disciplined Distinguished Dramatic Dulcet Dynamic Edu
ve Efficacious Effulgent Elegant Elite Elysian Eminent Energetic Enlightened Enriching Enterta
c Esthe tionary Exalted Excepti nal Exhilarating Expeditious Expre ive Extraord
nable Fas dious Fi Fin Fulgen
onal Gall Ge Gl Gr Gra Gr ous Gu Hands
onious Honest Idyllic Illuminative Illustrious Immaculate Impassioned Impeccable Impet
sive Incisive Incredible Indefatigable Individual Indomitable Ineluctable Ingenious Inim
tive Inspiring Instinctive Intense Intrepid Inviting Inventive Irresistible Jaunty Joie de vivre
Knockout Landmark Lasting Laudatory Laureate Legendary Lithesome Lively Logical L
le Luminous Maneuverable Manifest Mannerly Marvelous Masterly Matchless Memorable Mer
rious Natty Natural Nimble Noble Nonpareil Notable Oeuvre Optimum Oracular Orderly Or
nding Panache Paragon Passionate Peerless Performance Personal Persuasive Picturesque Pi
g Poetic Poised Portent Practical Praiseworthy Precise Premium Prestigious Pristine Prodi
ent Progressive Propitious Provocative Pure Purposeful Quadrashock Qualified Quality
ssential Quixotic Radiant Radical Rapid Rational Reactive Recherché Redoubtable Refined Refu
Resplendent Responsive Revel alient Sanguine Satisfying Scintillating S
ive Sensational Sensuo S us Sleek Solid Sovereign Sp
l Splendid Spo ystematic Tailored Tal
l Taut Timele Turbocharged Unb
terated Un mmon Unconvent
tated Une mating Unmista
eachable ation Unpreter
lleled U bane Utile Ut
ed Unus nturous Vera
s Volupt nty Visionary
ntutional Win
es Wonderful W
ed Xenophile Xi
ating Yardstick You
al Zealous

Thunderwords.

Thunderbird

Have you driven a Ford... lately?

Ford

Get it together–Buckle up.

To send a gift of Courvoisier call: 1-800-238-4373. Void where prohibited by law.

...and to all, the great cognac.

COURVOISIER

Le Cognac de Napoleon

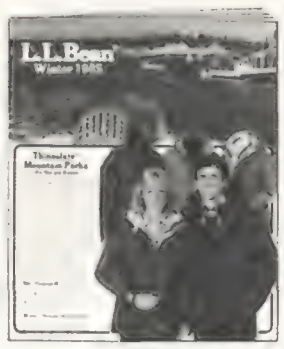
L.L.Bean®

Suede Sports Cap

Colors:
Rust.
Bone. Brown.

A sporty cap made of good-looking brushed pigskin leather. Strong, supple pigskin is impregnated with Scotchgard® to be rain and stain resistant. Brush to clean. Adjustable leather strap for a comfortable fit. Nylon mesh inside front retains shape of cap. For active sports and weekend wear. Sizes: Med. (6⅞-7¼) and Lg. (7¼-7⅝).

FREE Winter Catalog



72 pages of cold weather favorites from L. L. Bean. Quality apparel and footwear for men and women. Winter sports equipment, luggage and furnishings for home and camp. Special values on many items. All honestly described and fully guaranteed to give 100% satisfaction. Our 72nd year of providing dependable mail order service.

Please Ship Postage Paid

____1275W Suede Sports Cap @ **$12.75** Size_____Color_____

☐ Check Enclosed ☐ VISA ☐ MasterCard® ☐ American Express

Card No._____Exp. Date_____

☐ **Send FREE Winter Catalog** **100% Guarantee**

Name_____

Address_____

City_____State_____Zip_____

L. L. Bean, Inc., 1081A Casco St., Freeport, ME 04033

Is the key to evolution in his hands?

Find out on NOVA when Dr. Stephen Jay Gould discusses evolution and the Panda's thumb.

"Stephen Jay Gould: This view of life"
on NOVA, Tuesday, December 18.
Check your local listings.

ALLIED

Letters to the Editor

Eleanor Roosevelt

Dear Sir: Geoffrey Ward's article reminded me of a Bill Mauldin cartoon [below] which appeared in newspapers across the country on November 11, 1962, four days after Mrs. Roosevelt's death. For me, it puts this national treasure into proper focus.

Mrs. D. E. Gerlitz
Bellevue, Washington

News America Syndicate

"IT'S HER."

Dear Sir: Val-Kill is indeed an evocative place, not merely a repository for the past as it pertained to the dynamic Eleanor Roosevelt. There is an almost tangible essence of living history.

Walk through the woods and listen to the sounds of the stream. Outside the cot-

Ever wonder why so many Golden Almond® gift boxes never reach their final destination?

Blame it on the thick milk chocolate in our one-pound gift box. Blame it on the multitude of whole toasted almonds. But whatever you do, don't blame yourself. You're only human.

© 1984 Hershey Foods Corporation

tage, remember the splendor of other homes where she lived with her husband, none of which she called her own. The contrast is startling.

Think of what Eleanor Roosevelt wrote in December 1960: "Life was meant to be lived, and curiosity must be kept alive. One must never . . . turn his back on life." What a wonderful legacy she left us.

Laura Hagfeldt
New Haven

Antarctica

Dear Sir: Had I not just finished Lennard Bickel's *Mawson's Will*, which details emotional and physical horrors Sir Douglas Mawson experienced in the Antarctic and his awesome perseverance in surviving the ordeal, I might have let Michael Parfit's "cute" comment about Mawson's trek being less famous than Scott's "only because Mawson had the poor sense to live through it" pass without comment.

Douglas Mawson was called "a giant figure in the history of exploration of the southern continent" by Eric Norman Webb, who goes on to say, "He led one of the greatest exploratory expeditions of all time in terms of territory covered on foot —a coastline of 2,000 miles, penetrated to a depth of nearly 400 miles by a handful of men—and made massive contributions to knowledge of our planet with resources which must be considered niggardly by modern standards."

Edward Deaux
Santa Fe

Dear Sir: With Lincoln Ellsworth's *Polar Star* on permanent display in the National Air and Space Museum, it is surprising that your vivid article does not refer to Ellsworth's significant role in pioneering in the Antarctic from 1925 through 1939.

Ellsworth, on his third expedition to Antarctica, achieved a 2,185-mile flight that is unrivaled for daring. Far from possibility of rescue, four landings were made to wait out ferocious storms. Land never before seen was photographed and an area of approximately 300,000 square miles was claimed for the United States. For this achievement Congress awarded him a gold medal, the second in his career as a polar explorer.

Beekman H. Pool
Dublin, New Hampshire

Better Than Jogging, Swimming or Cycling

NordicTrack

Jarless Total Body Cardiovascular Exerciser Duplicates X-C Skiing for the Best Motion in Fitness

The enjoyable sport of cross-country skiing is often cited by physiologists as the most perfect form of cardiovascular exercise available. NordicTrack closely simulates the fluid, rhythmic XC motion and provides the same cardiovascular endurance-building benefits–right in the convenience of your home. Makes a year round consistent exercise program easily attainable. Eliminates the usual barriers of time, weather, chance of injury, etc.

More Complete Than Running
NordicTrack conditions both upper and lower body muscles for a more complete workout. Fluid, jarless motion does not cause joint or back injuries common to running.

More Effective Than Exercise Bikes
NordicTrack's stand-up skiing motion more uniformly exercises the large leg muscles and also adds important upper body exercise. Higher pulse rates, necessary for building fitness, seem easier to attain because the work is shared by more muscle mass. The NordicTrack also keeps more muscles in tone.

Even Better Than Swimming
NordicTrack more effectively exercises the largest muscles in the body, those located in the legs and buttocks. When swimming, the body is supported by the water, thus preventing these muscles from being effectively exercised. The stand up exercising position on the NordicTrack much more effectively exercises these muscles.

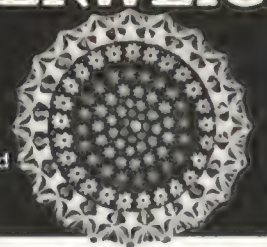
Practical, Takes Little Storage Space
Folds compactly in only 30 seconds. Requires only 15 by 17 inches storage area.

A Proven, High Quality Durable Product
NordicTrack is in its 7th year of production. NordicTrack is quiet, motorless and has separately adjustable arm and leg resistances. We manufacture and sell direct. Two year warrantee, 30 day trial period with return privilege.

Call or Write for Free Brochure
TOLL FREE 1-800-328-5888

PSI 124 H Columbia ct. Chaska, MN 55318
Minnesota 612-448-6987

PAPERWEIGHTS



Millefiori Perthshire Paperweight from Scotland $50

Send ten dollars for our catalog or receive it FREE when you order the above paperweight for $50. (MC • Visa)

Catalog 136 pps., Full-color, $10.

L.H. SELMAN LTD. 761 Chestnut St., Suite #27
Santa Cruz, CA 95060, Toll-free 800-538-0766

日本刀
JAPANESE SWORDS

For Free Evaluation Sheet

TOLL FREE 800-435-5119

$200 $10,000 CASH PAID

Japanese Military Decorations & German WWII Relics (especially daggers) Also Wanted

David E. J. Pepin—Member NBTHK, Tokyo, Japan
Dept. SI, P.O. Box 354, Grant Park, IL 60940

What's new? SHOESTRING NAMEPLATES that fit snugly on the bottom rung of any shoe lace as shown at right. Lifetime solid brass, only 1" x ¼", engraved any way you wish. Handsome, decorative (and they are neat IDs for joggers & children). Full price $2.50 each, or $5 per pair, money back if not delighted. We ship in 2 days. Mail orders direct to ELGIN ENGRAVING CO., 957 Edwards Ave., Dundee, Illinois 60118.

Martha Washington

The finest Portrait Dolls ever created—the Living Image© Collection. Museum authenticated. Handcrafted by American artists. Send for free color brochure and detailed description. United States Historical Society, First and Main Streets, Dept. D Richmond, VA 23219. Toll free 800-446-7968.

HIMALAYAS

One of the 34 places where travel with Questers becomes a learning experience.

For Tour Directory write or call:

QUESTERS WORLDWIDE NATURE TOURS
Dept. SM: 257 Park Ave. S; NY, NY 10010 (212) 673-3120

WELSH DRAGON TIE

Y Ddraig Goch, the Red Dragon of Wales, is shown on the traditional green background. It is also available on a navy background, or as a gold dragon on a maroon background. Polyester.

NO. 2155
RED DRAGON TIE $10.00

State color - red on green, red on navy, or gold on maroon. Add $1.00 for shipping.
Check, Mastercard or Visa.

Satisfaction Guaranteed. Send for our unique catalog. Visit our Seattle store at 1525 N.W. Ballard Way.

David Morgan
Box 70190, Seattle, WA 98107 • (206) 782-7028

A shimmering white palace on Glacier Bay.
Maids, masseurs, maitre d's bowing
to your every wish.
A festival of music to celebrate you.
Your Kingdom of the North awaits!
Royalty?
Yes. Royal Viking.

Privileged views. Elaborate feasts. Merrymaking. This is what Royalty is all about.

And what Royal Viking's Alaska is all about.

We've even choreographed our cruises with live music and famous performers. It's our Summer Music Festival.

Sounds great!

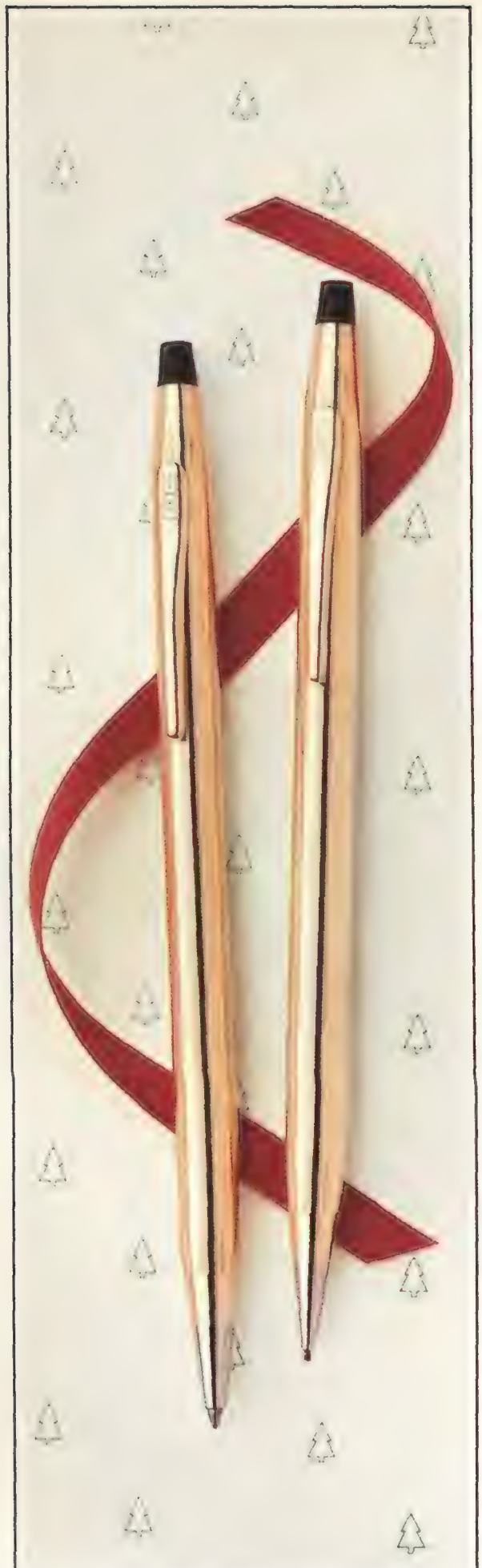
The only 11-day Alaskan cruises leave San Francisco round trip next summer. With free air fare and tempting prices.

For Glacier Bay as it should be seen, and heard, select the cruise line named best in all the world by the readers of *Travel/Holiday Magazine.*

For reservations, see your travel agent. For complete information, phone Royal Viking Line: 800-634-8000.

ROYAL VIKING LINE
World Wide cruising. World Class style.

Royal Viking's Alaska.



WHAT THE JOYFUL
WILL RECEIVE
THIS HOLIDAY SEASON.

CROSS®
SINCE 1846

Wrap up an elegant expression of your goodwill. Cross 10 karat gold filled pen and pencil gift sets. Lifetime mechanical guarantee. Suggested price, $50 the set.

How to read Proust

Mon Dieu, Monsieur: It's great to read Proust anywhere, any time, any way. He is a joy and a pleasure, not a duty. Also, since he wrote most of his masterpiece while lying in bed, this is an appropriate place to read him. Vive Marcel!
Ruth Ellen Hart
Pleasantville, New York

Dear Sir: It is quite a relief to discover that I read Proust under almost ideal conditions. Not exactly in the subway, but on the Second Avenue El. Remember, anyone? No danger of missing my stop, either. Everyone seemed to get on in Jackson Heights and get off at Hanover Square (which smelled deliciously of freshly roasted coffee). Every morning I boarded the same car, sat down in the same seat and opened my Proust, reading the novel through twice in the course of a year or so. Only in two respects did I depart from the advice. I was far short of 40, and I read it in French.
Suzanne Stahl
Princeton, New Jersey

Book reviews

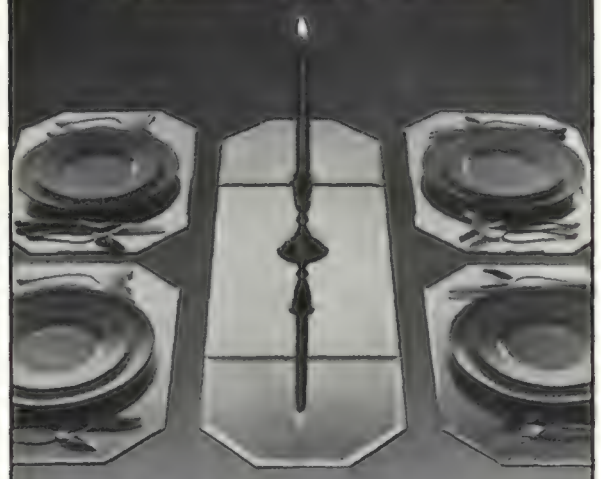
Dear Sir: In Jill Merrill's review of Antonia Fraser's *The Weaker Vessel*, the statement is made that Queen Anne "found herself both widow and ruler on the death of William. . . ." Queen Anne did become ruler in 1702 upon the death of William, her brother-in-law. However, she was not widowed until six years later, upon the death of her husband, Prince George of Denmark, in 1708.
Jane Lundeen
Fergus Falls, Minnesota
Ms. Lundeen is correct. Ed.

Baseball bats

Dear Sir: Like most American boys, I dreamed of having my very own Louisville Slugger. In the midst of the Great Depression I knew my prospects were poor, so was surprised and delighted to receive one for my birthday, just in time for baseball season.

I could hardly wait to take it to the pick-up game held on the diamond of the local college most afternoons. Our side was first at bat and our lead-off hitter asked if he might use my new bat. I

MIRROR
TABLE RUNNER



Light shimmers on this elegant mirror table runner, adding a romantic glow to your table.

Center section measures 10-1/2″ × 18″, each end 10-1/2″ × 9″. For smaller settings, use the center alone, or two end sections together.

Smoothly beveled edges. Felt pads prevent scratching, sliding. Easy care. Made in USA.

Mirror Table Runner. $24.99, plus $2.50 shipping & handling.

Matched Set. Table runner plus 4 matching beveled placemats (12″ × 18″)—just $64.98, plus $6.75 shipping & handling.

Check, money order, AMEX, MC, VISA (send number, exp. date, signature). NY residents, please add tax.

Through the Looking Glass
Dept. SM03 • 41 Madison Ave. • New York, NY 10010

Everything you expect from good champagne.

Except the alcohol.

The taste that won a Monde international quality award is out to win you. Meier's. Sparkling natural grape juice with no added sugar, no alcohol.

MEIER'S
Sparkling Non-Alcoholic Grape Juice

THE BOLD LOOK
OF **KOHLER**

In the world of Kohler form and function emerge triumphant. Here, a Kohler Infinity∞Bath Whirlpool.™ For a complete, full-color catalog of imaginative Kohler concepts for the kitchen, bath, powder room and spa, contact your Kohler dealer listed in the Yellow Pages or send $2 to Kohler Co., Dept. ARD, Kohler, Wisconsin 53044.

C 4059 Copyright 1984 Kohler Co

Own the first edition offered anywhere in the world in Pink Wedgwood® Jasper.

Announcing a rare first-of-its-kind from Wedgwood.

Enlarged to show detail. Actual size ⅞ inch.

Wedgwood® Jasper ware is the world's most collected ceramic. Famous Blue Jasper pieces are found in the finest museum and private collections. But never before has Jasper been made in *pink*. Never until the Etruria Hall Collection commissioned the Pink Wedgwood Jasper Heart Pendant.

This first-of-its-kind piece features a Cupid cameo first produced by Wedgwood in the 1770's in a fine golden-toned setting with an 18 inch chain. It is back-stamped "Wedgwood, England" as your guarantee of authenticity.

You won't find this Wedgwood rarity in any store. It is yours exclusively from The Etruria Hall Collection for just $37.50 plus $2.50 postage and handling. Order it for your own collection or as a very precious gift from The Etruria Hall Collection, Wedgwood Plaza, Dept. SM, Lyndhurst, N.J. 07071 or call 201-460-9200.

THE ETRURIA HALL COLLECTION
Wedgwood Plaza,
Dept. SM
Lyndhurst, N.J. 07071

Payment is enclosed for ____ Pink Wedgwood Jasper Heart Pendants @ $37.50 plus $2.50 postage and handling. I have added applicable sales tax of ____% for a total of $_____. (New York and California residents please add appropriate State and Local taxes.)

Or charge ☐ VISA ☐ MasterCard

Account #_____ Exp. Date_____

Signature_____
(charge only)

Name_____

Street_____

City_____ ST_____ Zip_____

"Wedgwood" is the registered trademark of Wedgwood plc of Barlaston, Stoke-on-Trent, England. Please allow four weeks for delivery.

agreed. He swung at the first pitch, there was a loud cracking noise and my new bat was shattered before ever I got to swing at a ball.

I was heartbroken, but many years later consoled myself with the thought that at least my bat had been ruined by one of the great sluggers of all time. As all baseball fans know, Johnny Mize, our lead-off hitter that day, had a sparkling career as first baseman for the Cardinals, and in his last World Series as a Yankee played a large role in demolishing the Dodgers.
Wendell Phillips
Kennewick, Washington

Dear Sir: Your article struck out on the latest innovation in bats—the triangular Broadsider, made of Northern white ash and aluminum. The NCAA has approved it for women's college softball championship games. Many cities have approved it for league play.

New York architect William Merritt designed the Broadsider with the largest possible "sweet spot"—240 percent greater than on a round bat—for maximum batting potential. It is produced in standard lengths and weights.

The rules of the game have protected the round bat—which now may become an endangered species.
Susan Epstein
Broadsider Sports Co., Inc.
Long Island City

Priorité à droite

Dear Sir: Chelminski's whimsy omitted the most intriguing of Parisian autoploys. This I will dub *la fronde* [catapult] *à droite*. It is practiced widely on congested side streets with traffic signals.

In this art form, a driver approaching a red light with one or two cars waiting will sense with infallible Gallic timing the exact split second when the light will change. He double-clutches his *deux chevaux* into low gear, streaks into the "No Parking" area of the curb lane at the corner, across the intersection and back into the traffic lane before the rightful occupant gets there. He quite often makes it. There seems to be a *loi morale* that if he can get his front wheels past your fender, you have to let him back into the lane. Meanwhile, pedestrians *en garde*!
John Foley
Vernon, Connecticut

Wildlife & Cultural Expeditions

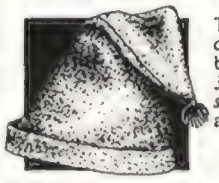
Combine adventure, discovery, and vacation on wildlife and cultural expeditions worldwide!

Join small groups interested in Alaska . . . Peru . . . Galapagos . . . East Africa . . . Japan . . . Mexico . . . New Zealand . . . Bhutan . . . and more than 25 other unique areas worldwide led by experts in anthropology and natural history.

For complimentary brochures write

Nature Expeditions International
474 Willamette Street • Dept. SM • P.O. Box 11496
Eugene, Oregon 97440 • (503) 484-6529

The Traditional Nightcap



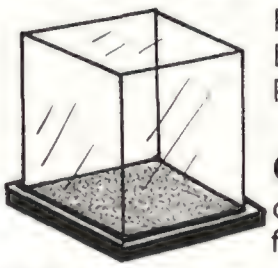
The red cotton flannel classic in luxurious double layers to really keep you warm in bed. *(Physiologists have measured that 30% of body heat is lost through the scalp!)* **Home-made and hand-finished;** adjustable for snug fit. **$7.95 ppd.**

Putnam Antiques
6 Pond Rd., Middlefield, Mass. 01243

ART ■ MUSIC ■ CASTLES
Stay in Castles and Historic Inns
Visit great centers of Art
Hear Music of the Masters
BAVARIA & AUSTRIA SMALL GROUP
for brochure - write to
AMC Tours, 4 Mounds Rd., Drawer A
San Mateo, CA 94402, (415) 340-9632

AMC

DISPLAY CASES



PROTECT AND DRAMATIZE YOUR PRECIOUS WORK OF ART
CUSTOM MADE
clear lucite on a finished wood base

SEND DIMENSIONS • LENGTH • WIDTH AND HEIGHT • WE WILL QUOTE PRICE

SATISFACTION GUARANTEED
FOR ESTIMATE CALL 804-442-2299
OR WRITE

THE DISPLAY CASE CO.
Box 8808, Exmore, VA 23350

KALEIDOSCOPES
AMERICAN ARTISTS
PLEASE SEND FOR OUR DESCRIPTIVE BROCHURE
LIGHT OPERA GALLERY
GHIRARDELLI SQUARE #102 S
SAN FRANCISCO, CA 94109
415-775-7665

Art for the way you live

Whatever the size or shape of your home (or office), you can hang the walls with the work of some of today's most renowned artists. The quality of our fine art prints is without compromise. Each is approved, signed and numbered by the artist. The subjects are as lively and diverse as your own interests . . . and as individual because the edition sizes are strictly limited. Write or call toll-free 1-800-243-4246 for our catalog and the gallery nearest you.

THE GREENWICH WORKSHOP
30 Lindeman Drive, Trumbull, CT 06611

The 1985 Turbo New Yorker. Once you drive it, you'll never go back to a V-8 again.

Chrysler introduces the new technology of driving: Turbopower* in its most advanced luxury sedan.

Here is the confidence of front-wheel drive, the security of advanced electronics and the quiet, smooth ride you expect in a fine luxury car.

And here are the luxuries you demand. Automatic transmission, power windows, power steering, power brakes, power remote mirrors and individual pillow-style reclining seats are all standard.

And finally, here is the new technology of turbo-power. More power to move you. To accelerate. To pass. To cruise in serene comfort... yet with remarkable fuel efficiency. 23 hwy. est. mpg 20 city est. mpg.**

Turbo New Yorker merits careful consideration by every luxury car owner. It is backed by a 5-year/50,000-mile Protection Plan covering drivetrain, turbo and outer body rust-through.†

The new technology of driving must be experienced. So Chrysler invites you: test drive Turbo New Yorker. Once you drive it, you'll never go back to a V-8 again.

Purchase or lease your 1985 Turbo New Yorker at your Chrysler-Plymouth dealer and buckle up for safety.

Chrysler

Chrysler. The best built, best backed American cars.

Turbo is optional. **Use these EPA ests. to compare. Actual mpg will vary with options, driving conditions and habits and vehicle condition. CA ests. lower. †Whichever comes first. Limited warranty. Deductible applies. Excludes fleet, leases. Dealer has details. ††Lowest percent of NHTSA safety recalls for '82 and '83 cars designed and built in North America. Best backed based on warranty comparison of competitive vehicles.

GTE, One Stamford Forum, Stamford, Conn. 06904

"Going this far to improve a light bulb?
GEE!"

(No, GTE!)

Everyone knows about the untethered space walk during NASA's first Challenger space mission. But what everyone doesn't know is that several of our Sylvania Metalarc™ lamps were tested out in space during that same mission.

Why did we have to go into outer space to experiment with a light bulb?

To test it in a zero-gravity environment. You see, gravitational forces affect the circulation of the hot gases inside lamp arc tubes. And data collected on the behavior of the lamp arc without the disturbances of these forces can help us design more efficient lamps.

The experiment consisted of three Sylvania lamps installed in a canister specially designed by GTE Laboratories to withstand the trip to space and back. Also installed in the module were three cameras programmed to photograph what happened to the lamps in the gravity-free environment.

Now that's what we call going to great lengths to make a better light bulb.

GTE

PERFECT PISTACHIOS FOR PEANUTS.

Nature has been generous to Sun Ranch. Our trees grow plentiful with pistachios nourished by constant sunshine, rich soil and ideal rain.

The quantity of the harvest is impressive. The quality of the pistachios is perfect.

Never before has Sun Ranch been able to offer you so much. Because right now, you can have natural, premium Sun Ranch Pistachios without paying a premium price.

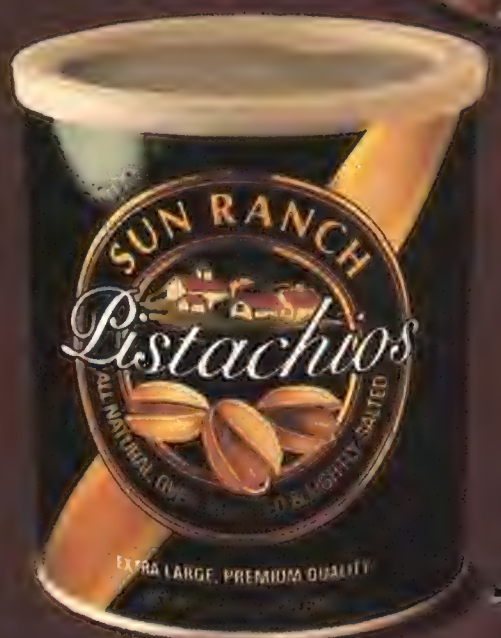
Shown actual size.

Of course, pistachios of this caliber merit a package worthy of what's inside.

So Sun Ranch designed a beautiful 15-ounce can, vacuum-packed for freshness.

Enjoy oven roasted, lightly salted perfection. At parties. For snacks. And as very welcome gifts. (Family and friends will thank you.)

Be as generous to yourself and to others as nature is to us. Buy perfectly affordable Sun Ranch Pistachios.



Around the Mall and beyond

The Smithsonian Institution Traveling Exhibition Service (an old and honored bureau of the Institution whose activities I do not cover sufficiently because of the need to spell out that incredibly long name once before collapsing into the acronym: SITES) has been putting on a quite remarkable little show in Pau, France. It's called "Early Flight: 1900-1911," and it consists of 56 original photographs of the Wrights and their wonderful invention. Two of them are shown herewith.

Some of these pictures have never been published or displayed. They were selected from 1,500 photographs in the Wrights' personal collection and arranged by three people at Wright State University in Dayton, Ohio. Tucker Malishenko, a graduate student in aviation history, got fascinated by what the university archives held and thought they would make a show. Ron Geibert, an assistant art professor experienced in putting exhibits together, organized this one. Associate Professor Patrick Nolan, head of the Archives and Special Collections, directed the project.

United Technologies Corporation's Hamilton Standard division is backing the SITES show. Old-timers in aviation will remember the Hamilton Standard propeller; now the company is a big aerospace outfit, producing, among other things, the space suits that astronauts wear when they wander away from their comfy old shuttle and stroll around outdoors. The exhibit moved from France to the National Air and Space Museum toward the end of last month and will be there all of this one before moving on to Yonkers' Hudson River Museum, Seattle's Museum of Flight, the Experimental Aircraft Museum at Oshkosh, and on and on into 1986.

Why was it in Pau, France? Because

A year after his 1908 crash, Orville Wright was astonishing a crowd at Tempelhof Field in Germany, where a catapult launched his plane.

PISTACHIOS PERFECT FOR CHRISTMAS.

With their high quality and low price, Sun Ranch Pistachios are perfect for parties, gift giving and all-occasion nibbling.

Packaged in a decorative can destined to become a collector's item, they're colorfully boxed and ready to ship anywhere you'd like. (We'll even enclose a card.) First, order for yourself. Then give them to everyone else with perfect taste.

Sun Ranch Pistachios come in boxes of one, two or three 15-ounce cans.

To order by phone, call toll-free: SM1284
1-800-228-5606
In Nebraska, call: 1-800-642-8788
To order by mail, fill out the coupon and send it to:
CIF Nut Corporation, 425 California Street
San Francisco, CA 94104

Pistachios in 15-ounce cans	Price	Qty.	Shipping* (per order)	Total
Box of one	$ 9.99	____	$2.50	$____
Box of two	$18.99	____	$3.00	$____
Box of three	$26.99	____	$3.50	$____
			Total Order	$____

*Delivery 2 weeks from receipt of order.
If you'd like faster delivery, call our toll-free number and we'll gladly arrange it.

My Name _____
Address _____
City _____
State _____ Zip _____
☐ Check Enclosed (pay to CIF Nut Corp.) ☐ Visa
☐ MasterCard ☐ American Express ☐ Diners Club
Card # _____ Exp. Date _____
_____
(Signature required for credit cards.)
☐ Send to my address listed above. ☐ Box of one. Qty. _____
☐ Box of two. Qty. _____ ☐ Box of three. Qty. _____
Please send Sun Ranch Pistachios as a gift to:
Their Name _____
Address _____
City _____
State _____ Zip _____
☐ Box of one. Qty. _____ ☐ Box of two. Qty. _____
☐ Box of three. Qty. _____
Happy Holidays From:
_____
(Name of Sender)
Would you like to send more Sun Ranch Pistachios? Just include the information listed above on a separate piece of paper and include it with your order.

LET'S GET IT TOGETHER. BUCKLE UP
GM
The car that dreams are made of.
You've dreamed of having your own Eldorado. And now you do. 1985 Eldorado. A very special Cadillac with a way of moving you like no other car.
1985 Eldorado
Best of all...it's a Cadillac.

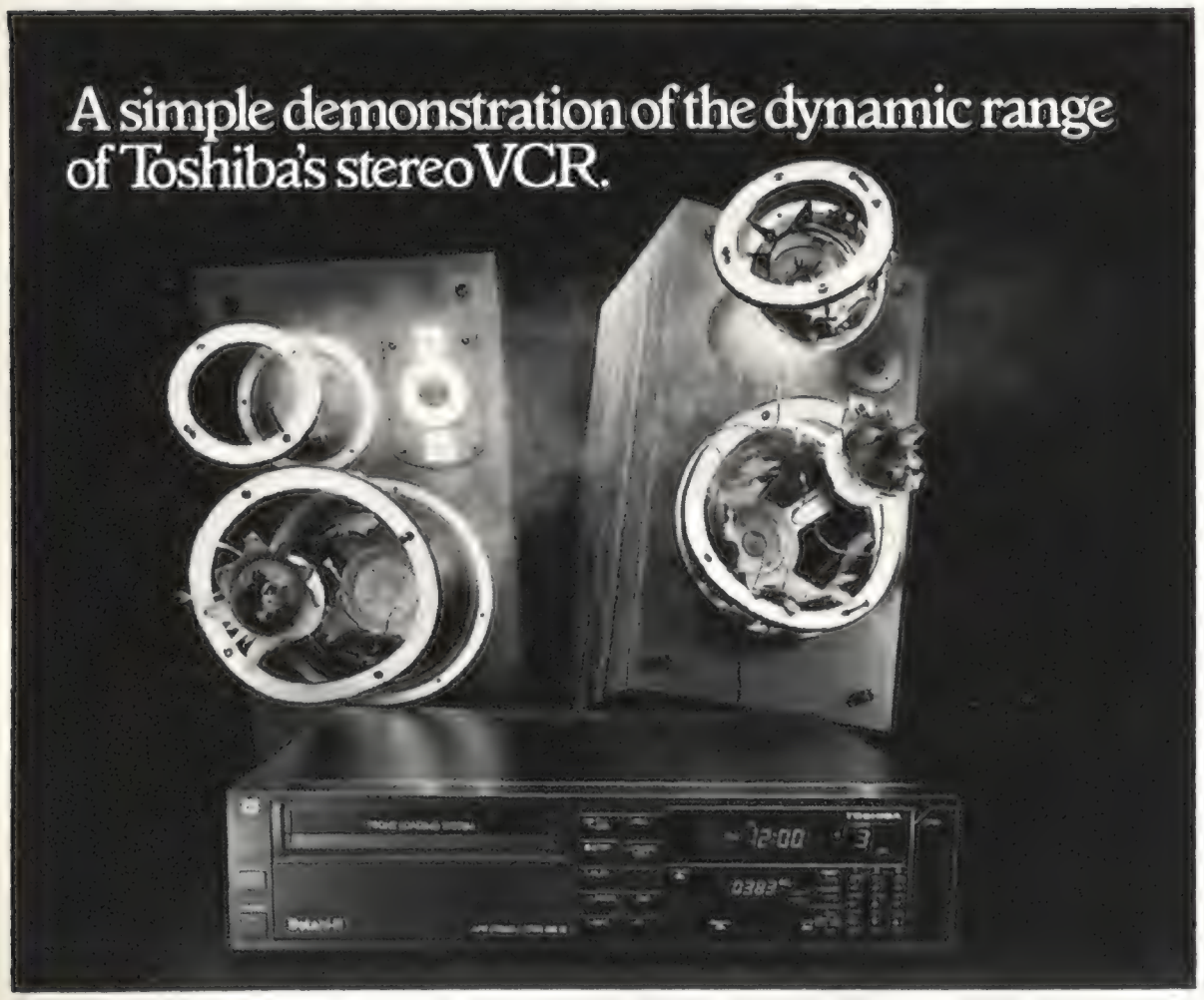
With brother Wilbur in France, Katherine Wright braced before her first flight.

exactly 75 years ago, Wilbur Wright experimented with one of the brothers' machines in France, and taught the world's first three student pilots how to fly at Pau. A French aero club was formed there, and now marks its 75th birthday. Orville Wright, recovering from the crash at Fort Myer that killed Lt. Thomas Selfridge (the first fatality in a powered aircraft), came to France with his sister, Katherine (above).

Wilbur took her up at Pau. It was her maiden flight and one of the first times a woman had been up in the air. To keep her warm and ensure the plane's airworthiness, Wilbur made sure that Katherine's long coat and full skirt were tied with a rope so they wouldn't catch in the wires or balloon open in the wind.

The Wright brothers had the right stuff to master photography, and some of their photographs in this show are extraordinarily good—sharp and clear, the action stopped neatly at an exact moment of grace and excitement. They also reveal glimpses of life more than three-quarters of a century or so ago—the early automobiles, a smoky cityscape, a solitary seamstress at work, the wide-brimmed ladies' hats and the caps that little boys often wore, which resembled those worn by the men of the Kill Devil Hill Lifesaving Crew, who stood by during some of the Wrights' early experiments.

Harry Combs' fine book about the


A simple demonstration of the dynamic range of Toshiba's stereo VCR.
12:00
The dynamic range of the Toshiba V-S46 is a window rattling, speaker-blowing 80 dB. And there's much more to it than meets the ear. Such as four video heads for snow-free slow mo and freeze frame. A 20-function wireless remote. Plus front loading and 117 cable channels. Turn it up and you'll either want to buy a new pair of speakers. Or have to.
In Touch with Tomorrow
TOSHIBA
Toshiba America, Inc., 82 Totowa Road, Wayne, NJ 07470

$2,100

AFTER ALL, IT'S MERELY MONEY

But it's not just Scotch. It's 25-year-old Glenfiddich Single Malt, a whisky of such character and rarity that many Scotsmen would prefer to keep it for themselves. Be that as it may, a small supply is available this year, bottled in glorious Edinburgh crystal. Each decanter is crowned with a solid sterling silver Stag's Head and comes in its own inlaid walnut chest. To obtain one for yourself, or as a gift for a most worthy friend, ask your local spirits merchant—or call William Grant & Sons collect at 201-225-9000.

GLENFIDDICH® SINGLE MALT
SCOTCH WHISKY

Glenfiddich Highland Unblended, Single Malt Scotch Whisky. 86 Proof. Bottled in Scotland. ©William Grant & Sons, Inc., New York, N.Y. 10020. Prices may vary from state to state.

When you make a $10 phone call from an overseas hotel, you might be leaving a $25 tip.

Remember what a tip used to be?
Money given voluntarily to someone who performed an outstanding service. Well, many overseas hotels see it differently. Because they automatically add telephone surcharges of up to 250% every time a guest places a call.

Cost of a 10-minute daytime call from Frankfurt to NY:		
Without Teleplan	With Teleplan	Savings to you
$91	$30	$61

What can you do to avoid this?
Stay at a hotel featuring Teleplan. A program set up by AT&T that insures guests fair and reasonable telephone surcharges on all calls.

So next time you travel, stay at a Teleplan hotel. Where you can be sure that making an overseas phone call won't mean making a major investment.

© 1984 AT&T Communications

AT&T

Wrights, *Kill Devil Hill*, notes that some of the great and powerful of Britain—including the former Prime Minister, Lord Balfour—often helped set the Wrights' catapult by hauling a 1,600-pound weight to the top of a derrick with block and tackle. The weight would then drop, tugging the plane into the air. Lord Northcliffe, owner of the *London Daily Mail*, watched with Wilbur one day and "pointed to a fine-looking young man heaving desperately on the catapult rope.

" 'Ah, you see that chap over there?' "

Wilbur nodded his head, and Northcliffe added that the man was a duke, " 'A very high station, indeed. . . . And this particular endeavor in which he is now engaged,' continued Northcliffe, 'namely, pulling on that catapult rope, is probably the only worthwhile thing that he has ever done in his life.' "

The past year has been strong on anniversaries, especially here in the East, where 1984 is the 350th year of Maryland's original settlement at "St. Maries Citty," which has lain dormant, underground, at a town now called St. Mary's City. Recently the old village has been dug into, sifted through and learned about. Some typical 17th-century houses have been reconstructed nearby. As the old Citty emerges, so does a good bit of knowledge about Colonial tidewater Maryland.

According to the historians, that oddly spelled name is significant because it illustrates one of the basic problems that people have in trying to recapture the way life was 350 years ago on the fringe of the wild North American continent. Settlers not only lacked a standard way of spelling. Most were illiterate . And all were too busy just surviving to write letters home and keep journals that would have made the rediscovery of their life-style somewhat easier today.

And then there is the 400th anniversary of our very first British settlement, which has been marked by more archaeology at the site of Fort Raleigh, on the Outer Banks of North Carolina. Some fresh information about Sir Walter Raleigh's colony has been dug up there, thanks to some modern sensing instruments that have helped investigators locate decaying matter, bricks and even post holes. Computers sort out the findings and give the archaeologists some idea of whether the site is worth their efforts.

The attempt to set up a colony at Fort Raleigh went on for a while, and so will this anniversary—for three years, to be exact. Mystery surrounds this chapter of history because all of the people who settled Fort Raleigh disappeared before a relief ship arrived from England. Those unfortunate men, women and children have been referred to ever since as the "Lost Colony." Perhaps the modern technology now on the scene can help investigators figure out what happened to them. At any rate, August 1987 will mark the 400th anniversary of the birth of the first English child on American soil, and will also end this quadricentennial.

We seem to have got through most of 1984 without following the grim course laid out by George Orwell. Looking forward to 1985, I find myself intrigued by Halley's Comet. It will be creeping up on us all through the year, making a gradual approach as though it has to get used to us before really showing itself. The event is being marked by a daily 28-minute planetarium show about comets at the National Air and Space Museum. Late next year, a show in the museum will exhibit artists' interpretations of the comet, from antiquity to the present.

A year from now, we should be able to see the thing with binoculars and maybe even with the naked eye. And people will remember it, and babies will be born under its distant light, as Mark Twain was, and will live their lives without forgetting. And some will die as Mark Twain did, when it finally returns yet again.

Edwards Park

Picture credits

Cover Art Wolfe; 16 Bill Mauldin; 27-28 SITES/ Collection of Wright State University; 34 Skip Brown; 44-47 Wayne Eastep; 47 Michael Robinson; 48-57 Wayne Eastep; 60-62 Michael Freeman; 62 Robert Harding Picture Library; 63 Michael Freeman; 64 National Portrait Gallery, London; 65 Courage Ltd., National Portrait Gallery, London; 66 Michael Freeman; 69 Courage Ltd.; 72-81 Neil Hollander and Harald Mertes; 84-92 Robert Osborn; 97-105 Ted Streshinsky; 108 courtesy Sun Valley Co.; 109 David Stoecklein; 110-112 courtesy Sun Valley Co.; 113 courtesy Sun Valley Co., courtesy Sun Valley Co., Culver Pictures; 114-116 David Stoecklein; 118 John Bryson; 119 David Stoecklein; 122-131 Art Wolfe; 134 Metropolitan Museum of Art; 134, 135 Tate Gallery; 136 Private Collection; 137 Minneapolis Institute of Arts; 139 Tate Gallery, Bridgeman Art Library; 140 Photo Bulloz; 142 Musée Baron-Martin, Gray; 143 Private Collection; 146-151 Brian R. Wolff; 152, 153 Bettmann Archive; 154-156 Brown Brothers; 158 Christopher Morrow/courtesy Bostonian Society; 160 Bettmann Archive; 162 Brown Brothers, Christopher Morrow/ courtesy Bostonian Society; 164 Bettmann Archive; 168 Christopher Morrow/courtesy Bostonian Society; 181 NMAH: 184 Cooper-Hewitt Museum; 188 Loel Barr

Fine hotels featuring AT&T Teleplan:

COMFORT HOTELS INTERNATIONAL
United Kingdom
Netherlands
France

GOLDEN TULIP HOTELS HOLLAND

HILTON INTERNATIONAL HOTELS
Worldwide

INTER EUROPE HOTELS
Switzerland
Germany

LEDRA HOTEL
Nicosia, Cyprus

THE LYGON ARMS HOTEL
Broadway, Worcestershire, England

MANDARIN HOTELS INTERNATIONAL LIMITED
Hong Kong
Indonesia
Philippines
Thailand

MARRIOTT HOTELS

NOVOTEL HOTELS
Germany
Austria

HOTEL ASSOCIATIONS OF
Ireland
Israel
Panama
Portugal

REGENT INTERNATIONAL HOTELS

For more information or a Teleplan brochure call toll free
1 800 874-4000.

THE SPACE VEH
TRANSPORT YOU INT

The year 2001 may seem like light years away.

But in a Volvo wagon, it's reachable.

You see the Volvos that are here today will be here tomorrow. They're so solidly built that they have an average life expectancy of 16.5 years.* (Of course this is merely an *average* life expectancy. A new Volvo could very well take you to the year 2001 and *beyond.*)

And as you head toward the 21st century in a Volvo wagon, you'll be travelling in space.

The infinitely adjustable front bucket seats can

*Based on an actuarial analysis of 1982-1983 U.S. Registration Data conducted by Ken Warwick & Associates. Due to many factors including maintenance, driving conditions and habits, your Volvo may not last as long.

CLE THAT COULD O THE 21ST CENTURY.

satisfy the dimensional requirements of 97% of the earth's adult population.

And with the rear seat down, the cargo bay affords you a full 71 cubic feet of room.

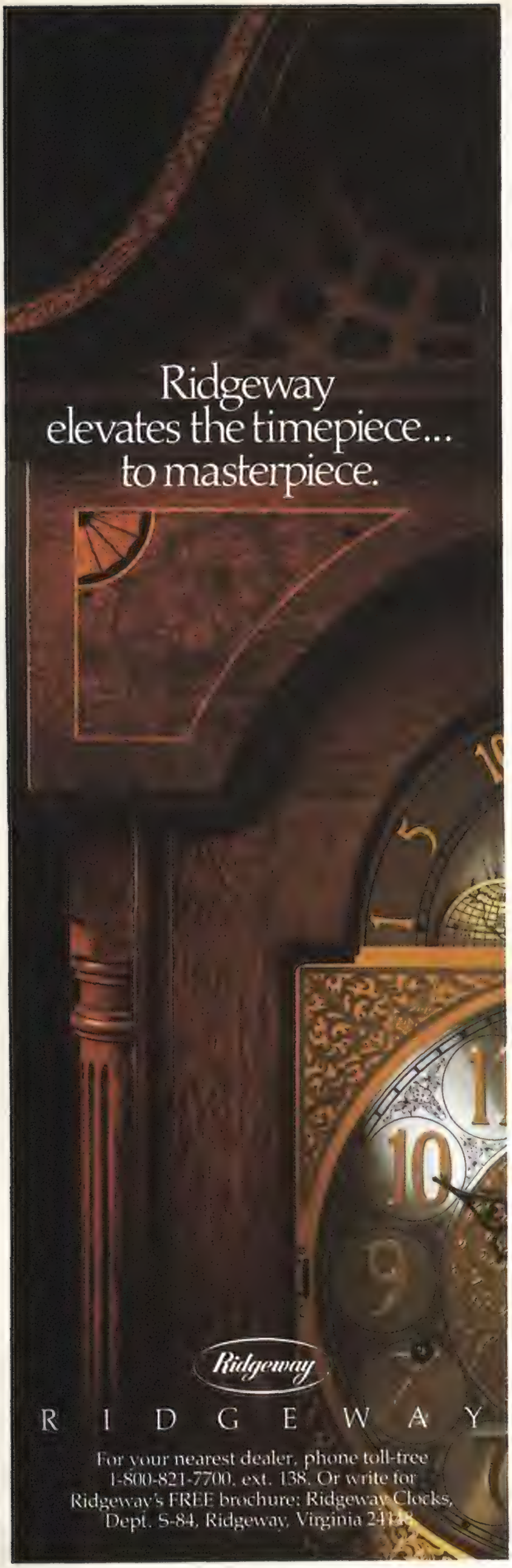
So visit a Volvo dealer and see the space vehicle that can take you to the 21st century.

Then you can select an economical diesel, dependable gas, or powerful intercooled turbo, depending on how fast you want to get there.

VOLVO

A car you can believe in.

Then again, it may last longer. Summary available from your Volvo dealer. © 1984 Volvo of America.



Phenomena, comment and notes

A Maryland ban on fishing for striped bass points up problems of Chesapeake Bay. An effort has begun to turn things around

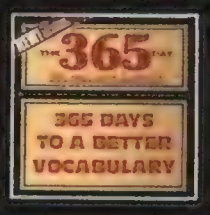
At sunset one evening last fall, I stood on the seawall at Point Lookout, the spit past which the Potomac River empties into Chesapeake Bay. A stiff breeze blew out of the southeast, across the open water, blowing the tops off waves and pushing them heavily against the rusted steel pilings at my feet. Gulls were everywhere, white against the whitecaps, making the dark surface seethe with life. On the horizon a container ship stood down the bay for the open sea. You cannot see across the bay from that point, and except for the absence of long-period waves, you could easily think you were looking at the ocean.

It is difficult to believe that such a body of water is in trouble, but there is no longer any doubt. Last year about this time, the Environmental Protection Agency (EPA) released the results of five years of studies of the Chesapeake, and the news was bad. The underwater grasses, which are both a key to the ecosystem and protection from erosion and

Rockfish, as they are known in the bay, have long been a staple. Now they are being saved for breeding stock.

Reflect

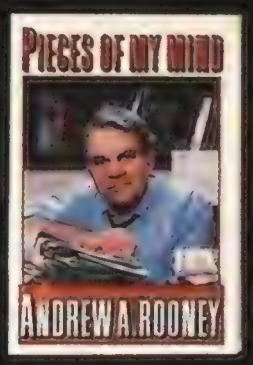
a



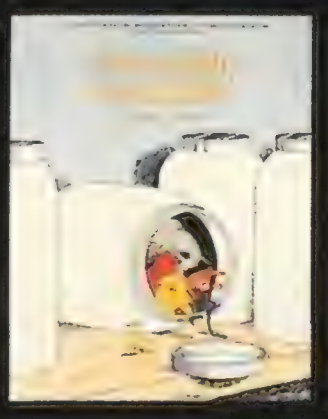
b

c

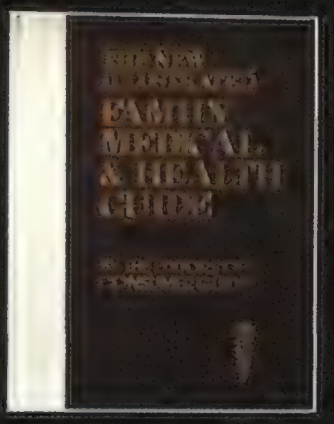
d



e



f



g

h

On the newest in calendars and games — **a)** Audubon's wall calendar of wonderful nature photography. **b)** A desk calendar with an interesting new word for every day. **c)** Today's most popular home entertainment game. **d)** The silver screen edition of America's favorite pursuit.

On the latest in humor, health and computers — **e)** 132 essays filled with Andy Rooney's wit and wisdom. **f)** A zany encore collection of the Far Side comic strip. **g)** A complete health care guide for the whole family. **h)** An illustrated, pop-up look inside the personal computer.

at Waldenbooks

Check the yellow pages for the one nearest you.

GIVE A YEAR OF WILL WENG CROSSWORDS FOR CHRISTMAS.

Every month, The Crosswords Club sends to crosswords lovers everywhere, four puzzles, freshly edited by Mr. Will Weng, retired Crosswords Editor of *The New York Times*.

These puzzles are created exclusively for members of The Crosswords Club, and are of the size and caliber of the vintage Sunday puzzles edited by Mr. Weng. They are mailed to members every month. Each numbered puzzle contains the solution to the preceding Weng-Of-The-Week, and, for puzzlers' edification, a commentary by Mr. Weng. Annual membership is $23.75. For two puzzler households, an extra set of each month's puzzles can be included (to the same address) for an additional $5.00.

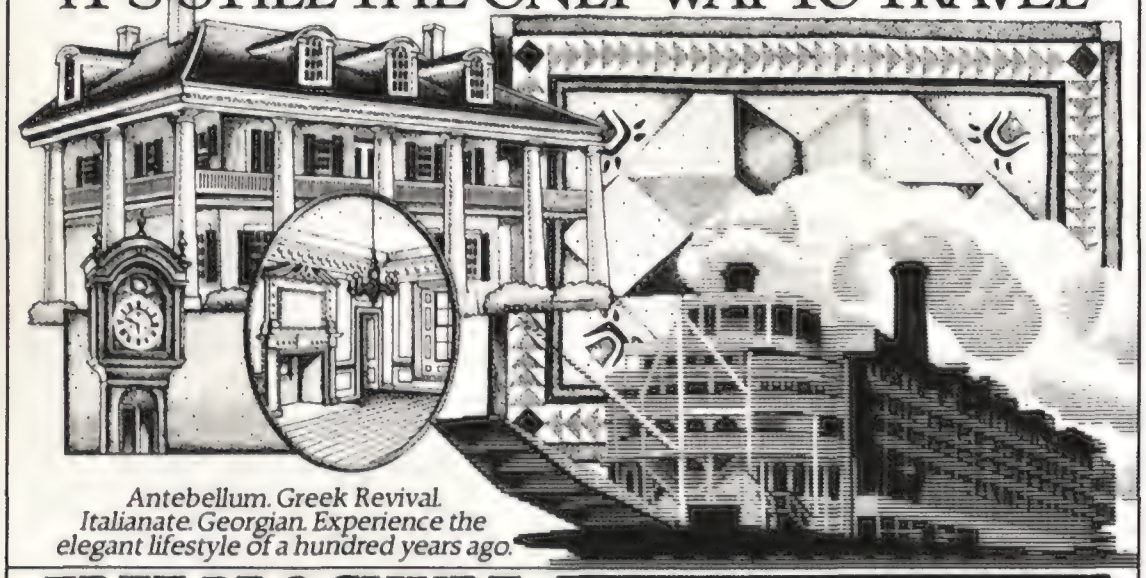
We will send *you,* upon receipt of your order, a suitably handsome gift certificate for you to present to the new member.
Please add $1.25 towards handling charges.

Send check or money order or charge to: MasterCard or Visa (include name, all digits, expiration date and signature).

Mail to:
The Crosswords Club, Dept. SA-018
Stevenstown Road, PO Box 276
Deep River, CT 06417
For last minute orders, telephone: 1-203-526-2671

THE CROSSWORDS CLUB™

STEAMBOATIN'©
IT'S STILL THE ONLY WAY TO TRAVEL



Antebellum. Greek Revival. Italianate. Georgian. Experience the elegant lifestyle of a hundred years ago.

FREE BROCHURE
See your travel agent or call toll-free
800-228-2220
or write: The Delta Queen Steamboat Co.
511 Main Street, Box SM72, Cincinnati, Ohio 45202

DELTA QUEEN
STEAMBOAT CO.
DELTA QUEEN
MISSISSIPPI QUEEN

2 to 12 Nights. Suites. Staterooms. Cabins.

Name:_____

Address:_____

City:_____ State:_____ Zip:_____

Telephone:_____ Area Code (_____)_____

Age: ☐ Under 35 ☐ 50-64 ☐ 36-49 ☐ Over 65 Ocean cruises taken: ☐ 0 ☐ 1 ☐ 2 or more.

storm damage, are disappearing. Then, last September, the State of Maryland, acting on information that 1984 had been the fourth disastrous year in the past five for the reproduction of striped bass, announced that a moratorium on fishing for the most valuable finfish in the bay would begin on January 1, and would probably stay in effect for at least four years.

The news was stunning for commercial fishermen, charter-boat captains and for everyone who cares about such matters. Things have to be bad for a state to ban the taking of one of the most popular fish on the East Coast. But the numbers are irrefutable. Maryland's Department of Natural Resources has been surveying juvenile striped bass (fingerlings two to five months old) since 1954. In July, August and September, field biologists use small seine nets and simply count the catch. The average for the first 20 years was ten juveniles per haul. Some years were outstanding: in 1970 the average haul was 30. The 1980s, however, have been a disaster. The average haul was 1.9 in 1980 and 1.2 in 1981. The next year the tally was almost back to normal at 8.4. But in 1983 the number plummeted to 1.4, and the score for 1984 was still uncomfortably low at 4.2.

The "Class of 1982" fish are a sore point in the controversy over the moratorium. Fishermen know there are a lot of striped bass in the bay and its tributaries that are nearing Maryland's legal size of 14 inches. But state officials maintain that every one of them is needed as breeding stock for the future.

The declines show in other ways, too. Economists at the University of Maryland estimate that for the Northeast as a whole, 7,500 jobs and $218 million in economic activity have been lost as the commercial and recreational catches have declined since 1974. (Since 1970 the commercial catch in Chesapeake Bay is down from five million pounds to less than 400,000.)

Their three-year study produced some interesting results for sports fishermen. In 1979, they found, fishermen in Massachusetts were spending an average of $78 per trip and they averaged one striped bass per four trips. New York fishermen were spending $77 a trip to catch one fish per 1.5 trips. And Maryland fishermen, who were less likely to stay in motels, spent less than $24 a trip to catch one fish per 1.4 trips. Connecticut had the best catch

ENERGY INDEPENDENCE

Can homegrown energy free us from foreign dependence?

America still consumes a lot of energy from other countries. Greater use of nuclear energy and coal, which are domestic sources of our electricity, reduces this risky dependence.

Last year, we paid $56 billion to foreign suppliers for oil and natural gas. That's almost as much as 1983's record U.S. trade deficit.

The trouble with foreign energy supplies

America doesn't have much control over the future price or availability of energy from other countries.

For now, the price of oil (and of other energy sources as well) has stabilized. But no one knows how long this price stability will last. No one knows whether Persian Gulf oil will suddenly be cut off from the free world, which still depends heavily on it.

Such a cutoff could *double* the price of oil.

Nuclear energy and coal are plentiful and homegrown

The U.S. has more coal than any other country in the world. Enough to last us hundreds of years.

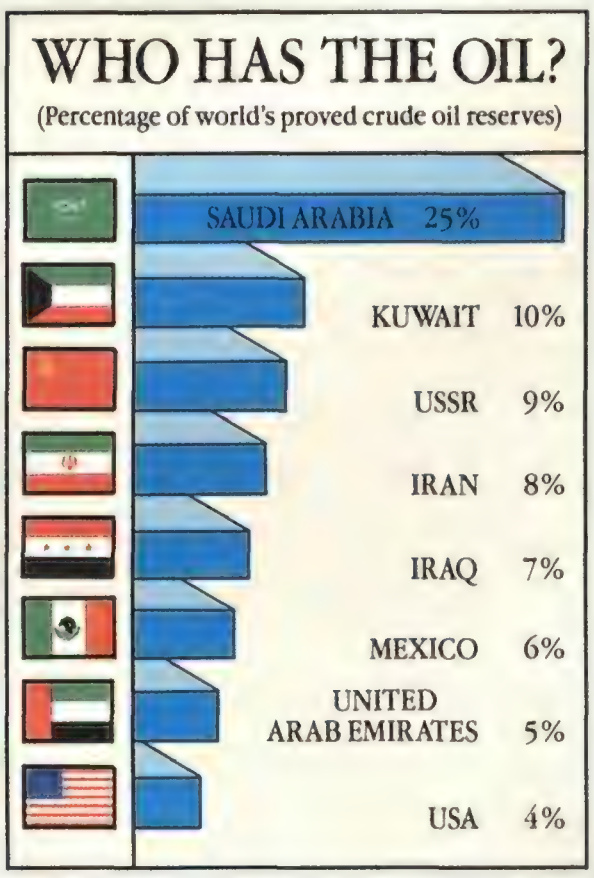
And according to a recent international survey, the U.S. has over 400,000 tons of "reasonably assured" uranium reserves for nuclear fuel—again, more than any other country. We have enough uranium to fuel all of America's nuclear plants—and many more—for their entire operating lives.

Nuclear energy replaces oil

Without the 85 plants now operating, most of their electricity would come instead from more power plants burning coal, natural gas, and oil.

Nuclear-generated electricity has already saved this country roughly 2 *billion* barrels of oil. Completing the nuclear plants now under construction will help save billions more by the turn of the century.

Also, electricity from coal and nuclear plants is being used instead of oil for such things as home heating, manufacturing, and materials production.



America ranks eighth in proved oil reserves. Our reserves have been declining for years, despite a big increase in exploratory drilling. Source: Energy Information Administration/ U.S. Dept. of Energy; Petroleum Information International.

Uranium and coal: secure fuels with a future

Now generating two-thirds of our electricity, coal and nuclear energy have eased America's dependence on foreign oil.

Safe, efficient use of these abundant homegrown resources will continue to strengthen U.S. energy security.

Free booklet tells more

For a free booklet on the electrical future of America, write the U.S. Committee for Energy Awareness, P.O. Box 37012 (F7), Washington, D.C. 20013. Please allow 6-8 weeks for delivery.

Information about energy America can count on

U.S. COMMITTEE FOR ENERGY AWARENESS

rate, nearly one fish per trip, while New Jersey had the worst, one fish in 12 trips.

Bad news from Chesapeake Bay is bad news for everyone concerned about stripers. Biologists believe that 90 percent of the stripers that range as far north as Canada begin life in the bay. In early spring, spawning takes place in the fresh water of tributary rivers, the Choptank and the Rappahannock, the Potomac and the Susquehanna. Larvae that survive the first few months become juveniles.

The young fish will live in the rivers and bay for two years or more until they are 12 to 16 inches long, big enough and strong enough to live in the open ocean, following schools of prey north to New England and then turning south again when cold weather sets in. The female stripers will not return to the bay to spawn until they are about six years old, by then two feet long and weighing ten pounds or more.

Earlier plans to help save the striper had involved both size and total catch. The Interstate Striped Bass Fisheries Management Plan had recommended a minimum size of 24 inches—breeding size—in coastal waters. The House of Representatives weighed in with a plan under which the Secretary of Commerce would impose a one-year ban on catching striped bass in any state which did not reduce its catch by 55 percent by June 1985. Maryland has gone the final step, a total ban aimed at getting the young fish safely out of the Chesapeake so they can come back four years older ready to spawn. Safe passage for whoever is left of the Class of '82.

The nightmarish aspect of the whole thing is that no one knows why the fish—or the underwater grasses—have declined so rapidly. Last year we learned how drastically the underwater grasses have declined, but also that after five years and $27 million no one was sure why. Herbicides from farm fields were the original suspect, but in the first year of its study the EPA found the concentrations in the bay less than lethal. Now the suspicion is that excess nutrients—phosphorus from sewage-treatment plants and nitrogen from farm fields—are causing blooms of algae and phytoplankton that prevent sunlight from reaching the submerged grasses growing on the bay bottom.

The decline does not seem part of any cycle. In a paper in *Science* based on their work for the EPA study, Robert J. Orth and Kenneth A. Moore of the Virginia Institute of Marine Science at Gloucester Point called the decline "unprecedented in the bay's recorded history." At one site they found seeds and pollen from aquatic plants in continuous layers of sediment going all the way back to the 18th century. The seeds and pollen abruptly disappeared in 1972.

We know less about the decline of the striped bass. The central question is why they are not reproducing more successfully. Many people, watermen as well as scientists, assume some change in the quality of the water is at fault, but no one can yet say exactly what change. One approach involves the process of elimination. Biologists cannot yet say for certain where any given striper was spawned. But they hope to find out by studying the successive layers laid down on certain bones in the fishes' inner ears called otoliths (literally, ear stones). Certain elements—cadmium, zinc, selenium and cesium, for example—will be present in the otoliths

leet the Smallest Diesel in the World.
t Runs on the Smallest Track in the World.

nember this locomotive? It's the GM F-7, the most ular road diesel ever made. If you've traveled on erican railroads or played with trains as a child, nces are your train was pulled by one of these uties. General Motors made almost 4000 of them.

d now Märklin, the world's oldest and largest model road manufacturer is making it available in a new ni-Club set. Precision crafted in West Germany, it's a y operational model railroad that sets up in minutes l occupies a space smaller than an attaché case.

Imagine how much railroad you could have on your desk—all for just $185.00.

But the fun doesn't stop there. You can add over 150 other items at any time. Get more track, locomotives, car accessories, and landscaping from Märklin—an almost limitless selection for your railroad.

Don't wait. Order your Santa Fe Set today, featuring the famous GM F-7 road diesel.

Maybe Märklin will break GM's production record.

märklin mini-club™

Call Toll Free 1-800-334-0854 ext. 873

Each set includes: a locomotive and three cars, a 29½" by 21" oval track, (16 pieces) a powerpack, an 84 page 1985 Mini-Club Catalog.

rains shown actual size.

© 1984 EGC, INC.

Call every day including Sunday, 24 hours a day, or complete and mail the coupon below.

EG Communications, INC.
60 East 42nd Street, NY, NY 10165

Please rush_____# 2601 Märklin Mini-Club Santa Fe Starter Sets (via UPS prepaid) @ $185.00 ea. to:

Name_____

Address_____ Zip_____

Total $_____ Charge my account

VISA #_____

MASTERCARD #_____

Exp. Date_____

or check payable to: EG Communications, Inc.
NY state residents add Appropriate Sales Tax.

Rush a complete Märklin HO/Mini-Club Catalog at $9.50 ea. (Cash, cheque or money order only.)

GUARANTEE: If not completely satisfied, return in 30 days for full refund.

The number one film in Germany is now here in the U.S.A.

Picturing America the way it really is.

Since one picture is worth a thousand words, we're eager to send you a free roll of our spectacular new color film. It represents an exciting breakthrough in photographic technology created to record color with the utmost fidelity.

When you see the sharp, clear images, the incredibly true-to-life colors, you'll know why we're making it irresistibly easy for you to see the same spectacular results that have made our new Agfacolor® color print film and Agfachrome® color slide film the favorites of so many Europeans. If you use a 35mm camera, send us this coupon, and we'll send you your choice of either Agfacolor 200 Professional color print film or Agfachrome 50 Professional color slide film, so that you'll have a chance to picture America the way it really is.

Fill out the coupon and mail to:
Agfa-Gevaert Promotional Distribution Center
Free Film Offer, Box #CN-12250, Trenton, N.J. 08650.

Yes, I would like to picture America the way it really is.

☐ Please send me a FREE roll of 35mm, Agfacolor XRS 200 Professional color print film, 24 exposures or

☐ Please send me a FREE roll of 35mm, Agfachrome 50RS Professional color slide film, 36 exposures.

I am enclosing $1.00 to cover postage and handling.
(check or money order only, please)

NAME _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

Offer expires December 31, 1984. Please allow 4 to 6 weeks for shipment. 1 offer per household. Void where prohibited. Agfa, Agfachrome and Agfacolor are registered trademarks of Agfa-Gevaert, Leverkusen, Antwerp. ©1984

And your first roll is FREE!

AGFA-GEVAERT

Preferred by those who know.

Agfacolor color print film is available in the following speeds: 100, 200 and 400. Agfachrome color slide film is available in 50, 100 and 200 speeds, sold with or without processing. Available only at fine photographic stores.

in different quantities according to the chemical makeup of the water where the fish has been. Eventually these variations may serve as a code that will yield precise information. And once biologists know of places where fish are reproducing despite the presence of unusual quantities of some potentially harmful element, they can eliminate that element as a suspect in the stripers' reproductive failure.

It would seem that unless some very specific cause-and-effect turns up, the stripers will not recover until the bay is generally cleaned up. And this will involve not just point sources like sewage and industrial wastes but the "nonpoint pollution" that comes from highway and field runoff. The good news is that that is beginning to happen. The federal government has put together a four-year, $52-million clean-up plan. And three of the states involved have ambitious plans, too:

- Maryland has created a Critical Areas Commission to help protect land within 1,000 feet of tidal wetlands. It also has authorized more than $6 million for soil conservation, shoreline erosion abatement and a forest buffer program.
- Virginia has earmarked $2.5 million to give farmers incentives to reduce soil erosion, and $750,000 for demonstration projects on reducing urban runoff.
- Pennsylvania has allotted $2 million to reduce agricultural runoff in the lower Susquehanna River basin.

It is a start, but a long way from the plan suggested by the EPA, which called for $335 million to be spent immediately to reduce the inflow of "nutrients" from sewage plants, and $10 million a year per state to reduce the inflow of nutrients from farm fields.

We won't know for years whether we can turn the Chesapeake around, whether the striped bass will recover, whether the submerged grasses will return. We won't know the day the tide turns, if, as everybody hopes, it does. Success will be all but invisible: a new shoot of eelgrass pushing up out of the mud, a fingerling striped bass darting about in some unnamed creek to which it will return again and again in future years, depositing millions of eggs. In the meantime, those of us so inclined will worry about the bay. We will stand at Point Lookout at sunset and look out over the water as darkness falls. And hope the sun comes up again.

John P. Wiley jr.

Befittingly Beefeater.®
BEEFEATER
GIN
Imported From England
BEEFEATER
London Distilled Dry Gin
Distilled and bottled by James Burrough in London England
Sole U.S. Importers Kobrand Corporation N.Y.N.Y.
BEEFEATER® GIN.
The Gift of Excellence.
To send a gift of Beefeater anywhere, phone 800-238-4373. Void where prohibited.

Blue Diamond® Almonds

a natural for parties

Get your party off to a great start. Pass around these crisp, crunchy Blue Diamond® Almonds. One nibble is never enough.℠ And because almonds have good food value (especially protein), you can feel good about serving them to friends and children. So when it's party time, stock up on the better snack – Blue Diamond® Almonds. Try all seven flavors.

the Almond People®
California Almond Growers Exchange
P.O. Box 1768, Sacramento, CA 95808

Mark of a leader.
Caxton's moveable type completely changed
English society.

William Caxton's device: his initials and trademark. (circa 1475.)
Courtesy of the John M. Wing Collection. The Newberry Library, Chicago.

MANUFACTURING PLANTS: ANN ARBOR, MI • ATLANTA, GA • CONCORD, NH • CREEDMOOR, NC • MINNETONKA, MN • MOORESTOWN, NJ • MOORESVILLE, NC

Mark of a leader.
By merging computers and telecommunications,
Northern Telecom is changing the way
the world communicates.

northern telecom

In 1475 when William Caxton printed the first English book, he started a quiet revolution. A free flow of ideas makes constant change inevitable.

Northern Telecom started its own quiet revolution, one that's also radically changing the way ideas are communicated. We were the first company to design and produce a full line of digital switching systems, the telecommunications technology that transmits both voice and data with digital signals.

Our success convinced many sceptics that digital communications was truly the wave of the future. As private and public digital networks grow, an international web of integrated voice and data communication is gradually being created. Instantaneous access to global data banks is becoming a reality.

Today Northern Telecom is a world leader in digital switching systems, in related technologies—fiber optics, large-scale integrated circuits—and in electronic office systems.

We're making our mark in the Intelligent Universe.

northern telecom

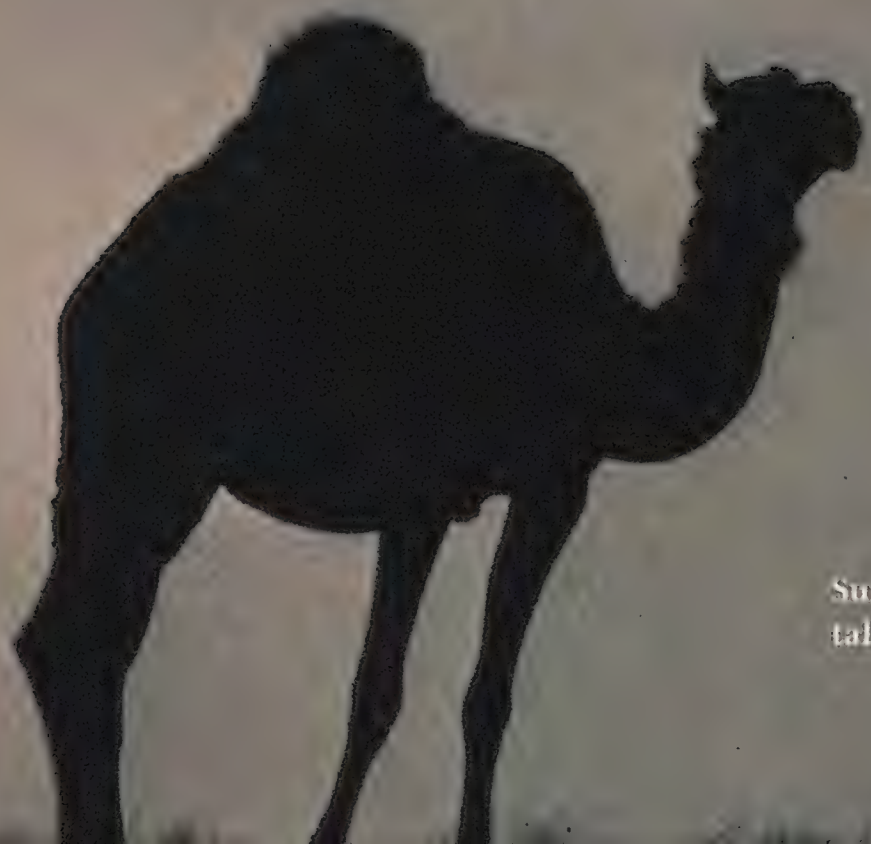
For further information write: Northern Telecom Inc., Public Relations Dept., 259 Cumberland Bend, Nashville, TN 37228. Or call (615) 256-5900, Ext. 4264.

MORTON GROVE, IL • NASHVILLE, TN • RALEIGH, NC • RICHARDSON, TX • SAN DIEGO, CA • SANTA CLARA, CA • WEST PALM BEACH, FL

Article and photographs by Wayne Eastep

Nomads of the desert

Saudi Arabia's Bedouin delight in their land's infinite beauty even as they adapt to its austerity



Sunrise in the Dahna: a stately Al Amrah elder talks to laggard camel, urging it to join migration.

Shammar women fight their way through a raging sandstorm in An Nafud to care for a flock of sheep.

We left Riyadh at 10 A.M. and drove southeastward for four hours. By the time we reached our destination, an Āl Murrah Bedouin camp on the edge of the Dahna Sands, the temperature was 122 degrees F.

The Arabs were expecting us. Even before we could get down from the jeep, members of the family were upon us. I was surrounded by smiling, talking men and guided toward the *majlis*, the main living area of Shaikh Jabbar Āl Amrah's tent. I looked back to see Patti, my wife, being led away by the women. I had no chance to say anything before she disappeared.

For the next three hours, with numerous small cups of cardamom-flavored Arabic coffee, they welcomed me to the camp. There were formal introductions all round, again and again. As my apprehension subsided, my halting Arabic gradually returned and I was able to tell them a little about myself. I could not understand much of their conversation, but one thing was clear: I was warmly welcome.

Patti had a harder time of it. The women literally pulled her into their section of the tent, the *alshiiq*, or harem. They were all wearing *burkas*, face veils, so only their eyes were visible. Fifteen of them sat in a circle staring at her. She had dressed like a Bedouin woman, with the veil and the black net *smada* securely wrapped around her head, chin and shoulders and she was very uncomfortable.

The women introduced themselves and then asked her to repeat their names. The names were strange to her, and there were no faces to tie them to, only 15 pairs of dark eyes. Mostly the women asked questions—about her jewelry and clothes, her children and her dowry. "You had no dowry! You have no children? *Mushquais* [very bad]!" they repeated, incredulous.

As evening came, the temperature began to drop toward the nighttime low of 90 degrees. The women put up a tent for us and helped us unload. Then it was time for supper.

Storm lasted four hours with lightning, torrential rains and hail accompanying advancing wall of sand.

Easteps' route, starting in Riyadh, is in red; some of Saudi Arabia's many Bedouin tribes are in blue.

Ever since I had first come to Saudi Arabia in 1980 I had hoped to travel with the Bedouin and photograph the everyday events of their lives. But my early efforts to gain permission for such a trip came to nothing.

In the end, it was a set of lucky coincidences that brought us to the desert. At the annual camel race in 1981 I happened to photograph a striking Bedouin major. I did not know him. Some months later I was showing the photographs to Col. Charles Hepworth, a member of the British Military Mission. "That's Major Saleh, Director of Officers for the National Guard. Why don't you send him a copy?" So I sent the Major a print, and eventually we met. I told him of my hope to live with the Bedouin for a time and he promised to help.

He introduced me to Maj. Nasser Āl Erq, one of the leaders of the Āl Murrah tribe, which anthropologist Donald Powell Cole has called "nomads of the nomads." In two day-long visits to Major Āl Erq's camp we discussed the idea. I told him I would like to live with a Bedouin clan and make a book of pictures about nomadic life. Convinced of my sincerity, he gave his permission, helped me to make arrangements and selected a clan he knew would be amenable.

The Major told me he had agreed for two reasons. He liked my pictures and, more important, a visual record of Bedouin life was needed. "Our people have lived the nomadic life for many thousands of years," he said. "Now that life is changing. We want our children to remember the old ways." The only conditions were that I not bring an interpreter and that I live as a Bedouin.

Patti and I tried to prepare. We took an intensive course in Arabic in New York, read all the books we could find and talked to people who had had direct experience with the Bedouin. They warned that the desert would test us and that the people would test us as well. They would be a clan of the Al Murrah.

During migration, Mercedes truck is handy anchor for tarp sheltering Āl Amrah from torrid midday sun while animals graze. Tents are pitched in evening; if grass is plentiful Āl Amrah will stay a few days.

The testing began as soon as we were on our way. Our guide was Nasser Āl Amrah, one of the leaders of the clan we would live with. Shortly after we left Riyadh we turned off the road and headed into the desert at speeds of 40, 50, sometimes 60 miles per hour. No one had told us to tie down our baggage. We lurched along over boulders and sand dunes and dry washes, trying to keep up. Pieces of luggage came flying into the front seat. Yet our guide tore ahead, virtually challenging us. We kept up, but barely.

The Āl Amrah clan embraces the families of ten brothers. Their home is the Dahna, a 750-mile-long, 50-mile-wide sand belt stretching from the world's largest sand desert, the Rub Al Khali, in the south to the 26,000-square-mile An Nafud, a desert of the north.

We experienced the legendary Bedouin hospitality from the start. Since we had brought no rugs or mats for the tent, Shaikh Jabbar Āl Amrah gave us his two finest rugs. Days later, we realized he was using only thin mats in his own tent. He had not asked for the rugs back, even though he had had to entertain other visitors without them.

This article is adapted from the book Bedouin, *which was sponsored by United Technologies Corporation and is to be published early in 1985.*

After they set up our quarters, our hosts started getting to know us. We were so foreign that, with formal politeness, yet almost childlike directness, they began to question us about our lives. The Āl Amrah were opening their camp to our camera; it was not unreasonable for them to examine us in return.

Two things about us troubled them deeply: we are vegetarians and we have no children.

The Bedouin normally eat one large meal a day, in the evening. *Kipsa*, a communal rice-and-lamb dish, is the usual fare, served on large platters. Eight or ten people cluster around each platter and eat with their hands, the men in the *majlis* and the women and children in the *alshiiq*.

The first evening, as I sat down with the men, I helped myself to some rice and explained that I do not eat meat. They expressed surprise, but let it pass. Next evening, as the meal progressed, pieces of meat began coming my way. The lamb is cooked in sizable chunks and it takes some skill to separate meat from bones. In typical Bedouin fashion the men were detaching prime morsels and edging them in front of me so that I might enjoy the best food without fumbling for it. Once more I told them I am a vegetarian. They said "No problem."

Still, day after day they offered lamb. They even volunteered to slaughter a camel or obtain some beef or

fish. At last, in my broken Arabic I told them meat so disagreed with me it inhibited my ability to relate to God; I avoided it out of devotion to Him. As deeply religious people, they understood. The subject was closed.

However, I loved eating with my hands and practiced making a ball with the rice and flicking it into my mouth with my thumb. When our new acquaintances noticed that I landed the rice in my mouth most of the time and not all over my face, they gave me approving glances.

Our being childless remained unfathomable to them. Bedouin families are large, ten or more children in a family is not uncommon. All the children are loved, cared for and disciplined by the extended family—the clan. And so our hosts immediately wanted to know how many children we had and where they were.

We said that we had decided not to have children. Patti bore the brunt. The women would quiz her: "You are married 15 years? Is there something wrong with you? Does Wayne have other wives?" We told them that our lives were very busy, we both had careers and we did not want children unless we could make time for them. The answers never satisfied our hosts.

One evening around the end of the first week the women gave Patti a special invitation to visit the *alshiiq*. They brought out a native dress and insisted she try it on. It fit. The women gathered around, smiling and touching her. "Now you are part of our family," they said. "You are Patti Al Amrah."

But one teenager took special delight in teasing her. Whenever someone new came into the *alshiiq* she flung Patti's *burka* up over her head, revealing her face. This was annoying, and rearranging the veil a nuisance. Finally Patti reacted in kind, exposing the girl's face. "You shouldn't do that," the women told her sternly. Patti stood her ground, rubbing her index fingers together in a typical Arab gesture. "Same same. She shouldn't do that to me." Eyebrows raised, they nodded and the flipping stopped.

Out of the tent go Western priorities

At first Patti tried to be what she called "a little Procter & Gamble housewife," sweeping the rugs every morning and shaking sand and bugs from all the places they infiltrated. But after a while the omnipresent heat and sand wore her down. Patti rearranged her priorities, especially the need to look pretty in the Western sense. Eye shadow lost its importance when the temperature was 120 degrees F and the wind, sand and sweat were ravaging her face. Although she never grew to like wearing a *burka* and *smada*, she looked better with them on.

When the evening cool brought the temperature down to 90, Patti filled a bowl with water and reward-

Sand doodling, finger wagging and a pot of sweets are adjuncts to art of conversation for Al Amrah elders.

Shammar welcomed Easteps to An Nafud with *kipsa* of lamb, rice, cucumbers, raisins and tomatoes.

ed herself for making it through the day by taking a sponge bath. That is what remained of an elaborate grooming routine.

Circumstances made it necessary for us to stay on into the summer, and living through the hottest part of each day was an ordeal. Our thermometer went up to 125, and by late May it burst. Between 11 A.M. and 3:30 P.M. even the camels lay down. The desert broiled. We seemed immersed in an incandescent furnace.

The heat was like a slow dream from which we could not wake. We measured the torrid hours in minutes, thinking: "I've just made it for 30 minutes. In another ten it will be 2 o'clock; that's more than halfway there. But I'll never survive until 2." Lips and noses became dry, our mouths hurt at the corners where they cracked, and our cuticles dried out and split.

Pouring water over ourselves, head to toe, and letting the wind dry us through our clothing was our greatest relief. When we had survived the blistering midday, energy returned with a rush. Then we wondered why we had thought the heat so bad—could it possibly have been that intense? The next day at noon we were reminded.

We kept track of our liquid intake for one week This is what the two of us drank: 24 eight-ounce bottles of Perrier, 24 cans of Pepsi, 15 gallons of water, 12 eight-ounce bottles of orange juice, five quarts of Tang, 56 demitasses of Arabic coffee, 80 demitasses of tea, 15 quarts of camel's milk, two cases of juiced oranges and 16 cups of ginger-spiced tea. Just holding one's own requires an intake of more than one gallon of fluid a day.

Where in the desert does one find so much water? The Al Amrah try to camp within 50 miles of a village or a well where they can fill their Mercedes tankers and assure a community supply for a week or two, but at times they must drive 150 miles to replenish.

Evening meal begins ceremonially: freshly brewed beverages and incense for perfuming hair and clothing.

We were seldom alone except when performing bodily functions. Bedouin do not favor solitary activities. The desert is very large and the people are relatively few. Something in that expanse seems to push them together. Whenever we went off by ourselves, especially at first, someone came to see whether we were all right.

In the morning we would drive off to take some pictures. Often before I could set up, one or two truckloads of Bedouin would appear. Curious, they wanted to watch me work. But mostly they came because we were guests and they wanted to be with us.

When the women first visited Patti in our tent they inventoried our possessions, and a few rummaged through our cases. They flipped up her shirttail to check out her slip, looked under her long skirt and felt her arms and legs. It was unsettling. In time, though, we became accustomed to the closeness and they to our need for privacy, even though they did not share it.

We must have seemed strange under our robes, so pale and soft. Bedouin women have muscles like ponies'. They hoist and grind, lift and push to provide the family's shelter and food. Their strength made Patti feel weak until she took up their life. That life toughened us both. And it gave Patti especially, as a

Here, host Hamet Āl Amrah prepares strong Arabic coffee with cardamom, which will be followed by tea.

North American woman, a taste of real physical effectiveness. She learned to tie down the tent properly and to pack it for moving. The Matriarch showed her the correct way to heave a tub of wash water from the truck. All the women were so pleased by her progress that she was proud in a giddy, childlike way.

Patti was awed by the things the Matriarch did so well and with such energy. Even in midday she spun and wound thread, shook the flaps of the *bait*, the open-sided community tent, to catch a breeze, all the time watching out for the children, the herd, the food, her guests.

Even though our Arabic was limited, our hosts appreciated our efforts to use it. They were patient and helpful and tried continually to teach us new words and phrases.

One evening we had a guest, an Āl Amrah relative who worked in the oil fields at Khurais. He quizzed me at length about what we were doing there. His English was fluent. I answered in Arabic, partly because I wanted to practice but also so that the others might follow me. After a while he became impatient and demanded, "Why don't you just speak English?" I muttered something about trying to improve my skills and kept talking. He asked again. Several elders interrupted. The Shaikh cleared his throat and made an official reprimand. "These people have come here as our guests. They eat the food that we do. They sleep in the sand as we do. They travel as we do. They live in the hot sun as we do. They try to understand us. They try to speak our language. Do not insult them."

Bedouin love to talk. The desert forces them to create their own entertainment, and conversation is one of the greatest of Bedouin arts. Almost any topic lends itself to spirited exchange. Every detail of an encounter with a visitor is examined from every angle, no incident of a trip into town is too insignificant for discussion, an accident or a risible event is dissected with enthusiasm. Our abiding disappointment was that our Arabic was too limited to follow conversations, so we missed the point of most stories, poems and gossip.

Long stretches with nothing said

But the Bedouin were also comfortable with silence. Many times ten or 20 minutes would pass with no one saying a word. At first I felt awkward, but in time I, too, accepted long stretches with nothing said. Moreover, I learned that the Bedouin do not confide their innermost thoughts. I suspect that is how they compensate for a lack of physical privacy.

They are warm and affectionate toward one another. Early on, when I saw Bedouin men holding hands it made me uneasy. The first time Nasser Āl Erq held my hand as we walked, he remarked on it. "In America people think men are homosexual if they hold hands. In Arabia it means we are close friends or family."

Their sense of humor delighted us. They managed to laugh at almost everything. My guess is that the biggest contribution we made during our stay was to provide amusement. We were slow learners. Patti forgot her sandals one day as she set out for the jeep over blistering sand. Hotfooting it back to the *alshiiq*, she was met by waves of laughter. My leaving our propane stove in direct sunlight until its hose popped and hissed occasioned similar merriment. And the flies! There were millions in our tent in the middle of the day. We seemed to be swatting and cursing them incessantly while trying to defeat them with coils of sticky tape. The Bedouin thought flytrapping funny, and silly too. But they humored us, leaving us thankful, albeit a bit sheepish.

Among my equipment was a brightly colored nine-foot kite to take the camera aloft for aerial shots of the encampment. I brought it out to entertain the children one afternoon. They were fascinated as I let it rise slowly. The fun was just beginning when Shaikh Jabbar strode out of his tent. "Get that thing down," he commanded, politely. When my kite was back on

Camel-toting Toyota has come to a market 100 miles away, where these elite beasts were bought for herd.

the ground he asked me not to use it again. It would frighten the animals, and he did not fancy a stampede of 1,300 camels and 700 sheep.

The Bedouin are strict Muslims. Their day begins at 4:30 A.M. with the first call to prayer. Normally, they pray five times daily, but when migrating the Quran specifies three. "*Allah Akbar!*" they cry—God is great. The men assemble at a spot where a mosque has been outlined on the desert floor, bow toward Makkah (Mecca) and recite their prayers. Then they are ready to begin their chores. There are horses, sheep, dogs, goats and camels to feed and coffee to brew.

The coffee is made from green beans, lightly roasted in a skillet and then ground with fresh cardamom in a brass mortar. The Al Amrah taught us the technique, so we began toasting and grinding our own. The clang of brass on brass sounded like bells ringing out in the desert. One day, enthralled by the sound, I let the pestle swing freely against the sides of the bowl. I looked up to see the entire camp heading for our tent. Ringing the metal mortar is an invitation to morning coffee for everyone!

There were about 150 people in this particular camp. The dozen tents were spread out for about a mile in order to allow grazing space and minimal privacy. When Bedouin go visiting they announce their approach by coughing or clearing their throats, then stand at the entrance to the tent until invited to enter. One afternoon as I was standing naked in a large metal bowl, bathing, we heard a forced cough and the sound of many footsteps. Under pressure, neither Patti nor I could remember the suitable Arabic. While she grabbed the tent flaps and held them together, I found a towel and began shuffling our language cards. Our visitors knew we were at home and stood outside clearing their throats. Finally Patti managed to blurt out something like "My husband is washing his body." They understood, and retreated discreetly.

An aristocratic self-confidence

Bedouin are proud and independent, with a self-confidence that is truly aristocratic. It puts them at ease anywhere. I believe this confidence comes from the knowledge that they thrive where most people could not even survive.

Their attitude toward possessions is shaped by the desert. Whatever is necessary for survival is treated with utmost care, even reverence—such things as rugs to sit on, bolsters to lean on, an incense burner to perfume hair and clothing, a large pot of hot water for making endless cups of tea and coffee and for cleaning dishes, brightly painted platters for *kipsa*, omnipresent bowls of dates. Toward everything else, including money, they are relatively indifferent.

Red sand dunes are backed by Tuwayq escarpment, forming an arc from the Rub Al Khali to An Nafud.

Herds and flocks of many migrant tribes flourish on the variety of fine grasses that grow in this area.

As we lived among them, gradually their priorities became ours. When we first went to the Dahna Sands we could hardly get all of our camping equipment and clothing into the jeep. But several weeks later, by the time of our 900-mile drive to join the Shammar in the north, we were pulling over to the side of the road at night, taking out our grass mat and sleeping bags and settling down in the sand.

With the Bedouin, money is communal; all share according to need. Because of their extensive knowledge of the desert and traditional loyalty to the King, they are indispensable to the government. Their advice and opinion are sought and they are compensated for their services. American and European petroleum geologists and oil company executives consult them. Some have become involved in trade and are among the kingdom's most successful businessmen. The National Guard is chiefly Bedouin, and they are important components of the police and special security forces.

Our Al Amrah clan was unusual in having its own school, complete with desks that might have come from P.S. 241 in Brooklyn. Every morning the boys assembled in the school tent with Abo Makmood, a skilled Sudanese teacher. They studied social science, mathematics, science, Arabic and religious subjects and, beginning with the middle school, a second language. Some tribes forgo migration to settle in or near large towns where their children can get a formal education. Young Bedouin consistently test at the top; their ability to adapt and keen sense of observation seem to tie in with the ability to learn.

Migration begins in the fall and continues until early summer and the holy days of Ramadan, a month of fasting. June through August is spent in a desert oasis or near a town or city, waiting out the worst of summer heat. But while migrating, the camp moves every few days, always in search of pasture, sometimes diverging hundreds of miles to secure adequate graze and water. Herders start early and drive the animals slowly in the morning cool, usually about 15 miles, a good day's camel ride.

This solicitude benefits the animals—and also the clan. Without camels, life in the desert would be impossible. They survive for long periods of time on little water and can eat thorn bushes. Camel's milk is delicious, rich in nutriments, high in vitamin C, low in fat. The meat is reputedly excellent, the hide provides shelter, the hair is woven into cloth.

The family might give a camel to a friend in need, but will not sell one even though the herd is large. The only exception that I know of was made for a wealthy breeder in Riyadh, who asked to buy an espe-

A discreet finger pokes through slit in a partition as a woman observes visitors in main living area.

Oblivious to lightning from gathering storm, wedding guests bow devoutly during the day's final prayers.

Shammar women take a break from weaving sections of tent wall (foreground). The wool is from their own sheep; pattern identifies the tribe. Less strict than the southern Bedouin, they are still devout Muslims.

cially fine animal. At first the Āl Amrah refused, but when he offered 500,000 riyals, or about $150,000, the family agreed. The breeder was sure to take good care of such an expensive investment.

Saudi Arabia is a conservative society, in which several tribes trace their lineage back to the Old Testament. The women are veiled, are not allowed to drive on the roads. They attend separate schools. So we were surprised to find women playing such a central role in the life of the camp. Initially, whenever I was visiting one of the tents, they remained in the *alshiiq*. But as we lost our visitor status they joined the conversations, expressed their views and were listened to with respect. The partition between the *majlis* and the *alshiiq* has small slits at eye level so the women can observe, and hear whatever is being said. When visitors have left, the women's assessment is invited. Under Islamic law, a man may take four wives, but only if he has the wealth and ability to treat all equally. None of the Āl Amrah in our camp had more than one wife.

There is a clear division of labor. Women handle cooking and set up camp, men tend to the shopping and other activities away from camp. We did not always follow suit. At first the water containers were too heavy for Patti to carry from truck to tent, so I took over. Initially the women teased me, but finally said bluntly, "This is not man's work."

Variety and wonder in the desert

Within the past three decades significant numbers of foreigners have penetrated Arabia, and oil wealth has transformed the country, but on the whole the Bedouin have remained relatively untouched. Their view of life, their values, their love of the land are constant. To untrained eyes, the desert has a drab sameness. To the Bedouin, it is a place of variety and wonder. They have names for the different sands and for each type of meager grass. They note the smallest change in the shape of a dune or the stones in a wadi.

Those tribes in the south, well protected by trackless deserts, have changed little through the centuries—like the Āl Murrah and their neighbors—and so are considered very strict. In the north, where there has been considerable commercial contact with other parts of the Arab world, the Bedouin are more cosmopolitan, at least by Saudi standards. Women there, for instance, often work in the *alshiiq* without their *burkas*. In the south no woman would leave the *khama*, or bedroom, without her veil.

Although the Bedouin cherish their camels, they have switched to pickup trucks for transportation. If there is a modern way to cope with an old problem, they praise Allah and adopt it. Life in the desert is hard enough as it is.

Men in our camp enjoyed long drives through the desert to patrol, to look for rabbits, to find a new grazing spot. Often they invited us to join them. On one reconnaissance trip Patti was having a particularly hard time with the heat. Shaikh Jabbar wet her *sharshaf*, a filmy waist-length cotton scarf, and wrapped her in it to cool off. This tickled everyone. Jabbar called his technique "Bedouin conditioning."

The Āl Murrah are noted throughout Arabia for their tracking ability. Many can look at a camel footprint, for example, and tell how old the animal is, when it passed, how much it was carrying and something about its physical condition. Jabbar Āl Amrah serves as a scout and spotter for the royal family when they hunt with falcons in the desert.

A footprint catches a killer

The father of the Āl Erq clan, Saleh, was often asked by the government to help in criminal cases. There was a murder in the north, with a footprint in the sand the only evidence of the killer's identity. Saleh Āl Erq was flown to the scene. Despite considerable time reviewing the print and searching for the criminal, his efforts were unsuccessful. One year later he was again in the north, on his way to a mosque. Suddenly he stopped, pointed to a footprint and said, "That's the murderer." After prayers, the worshippers were made to exit the mosque one by one. The killer was apprehended and subsequently confessed.

We soon came to feel a part of the Āl Murrah tribe, so much so that on occasional trips to Riyadh I did not seem to belong there. Identifying with the Bedouin, I felt alien to city people. And we really felt that we were family when the Āl Amrah started playing tricks on us. Rashid, one of the Shaikh's brothers from Qatar, came for a visit. He spoke excellent English and we had a pleasant conversation. But then, during a pause, he turned to me and said, "I'm insulted by your behavior this evening."

An awful fear seized me. I tried to think what I might have said or done to offend him. I was speechless. Rashid continued: "I'm terribly insulted that you did not ask to meet my wife."

Quickly, I tried to recover. "I'm sorry for my rudeness. I would like very much to meet your wife."

He led the way and summoned the women from the *alshiiq*. One stepped forward and we began to go through the introduction ritual. I tried to remember the correct Arabic, to show a friendly interest but not appear unduly familiar or try to look too closely at her veiled face. I did not want to add injury to insult. The introductions finally over, Rashid stepped forward, took hold of her *burka*, lifted it and smiled. There stood Patti.

Our six weeks among the Āl Amrah ended with a tearful parting. Feeling like veterans, we headed north to join the Shammar, a Bedouin tribe in the An Nafud.

After the flat sameness of the Dahna Sands, the An Nafud was dramatic. The sight of its graceful, varied dunes, some towering 300 feet, was a cool wash for our eyes. The sand varied from white to tan to reddish. After the one rain we experienced, it took on a rich red-brown color and was hard and cold to our calloused feet. When that rainstorm hit we went berserk. The drops made large cups in the sand. We danced with our arms spread, glorying in getting drenched. Then it occurred to us, "This is *water*!" We grabbed a five-gallon can. But then the shower was over and we had saved only about four cups.

Once more the tribe welcomed us. We had barely a week with the Shammar, but in that time managed to leave a lasting impression. A few days after our arrival we were wakened in the night by the sound of jeeps racing about. Next morning, as the camp gathered for coffee, we learned that a fox had got among the flock and killed two sheep.

Just the day before, Patti and I had been scouting the desert for photogenic locations. I had noted several holes in the side of a plateau and had remarked that they looked like fox holes. So on this morning I said, "I may be able to help you find the fox."

They smiled and winked at each other and went on talking. But about four that afternoon the Shaikh and his son pulled up to our tent in their truck. "Show us the fox." They had come to call my bluff. With some misgivings Patti and I climbed into our jeep and headed toward the spot where we had seen the holes.

As we approached, a fox ran in front of the Shaikh's truck and dived into its den. He stopped, looked back at me in wonder and proceeded to suffocate the animal by building fires at each end of the opening. At supper, the story was told over and over, and our skill was attributed to our having lived with the Āl Amrah.

In a way, one can hardly describe our time in the desert as pleasant. The heat was unspeakable; we had bouts of sickness. Patti, especially, had hardly a day of good health and there was a host of major and minor discomforts. Yet both of us have the same response to our Bedouin experience: we want to return. We have learned to survive in that hard land, where life is pared down to the essentials and the verities of friendship, hospitality, simplicity are nurtured and cherished. We wonder if we could enjoy living there, if perhaps we are ready to join the Bedouin.

Some of 1,500 competitors in annual Jinayderiah camel race jostle for advantage at the first turn.

Never have so few done so much for the enthusiast.

The enthusiast. It takes one to know one. That's why the 30 men at Ford Special Vehicle Operations are more than just engineers. Or technical experts. They're enthusiasts. That's what SVO is all about.

About power.

To get 175* horsepower and 210 lb/ft of torque from a 2.3 liter, 4-cylinder engine takes skill. And electronic fuel injection. Turbocharging. Forged aluminum pistons. High temperature alloy valves. A rev-limiter. And an air-to-air intercooler. Enthusiasts like power.

About precision.

It takes more than power to make an enthusiast happy. It takes the crisp feel of a Hurst® linkage on the 5-speed gearbox. It takes repositioned pedals that allow smooth heel-and-toe downshifting. And it takes the calculating brain of an electronic turbo boost control to adjust boost, timing and air charge. Enthusiasts like precision.

About handling.

Mustang SVO knows how to handle itself. Adjustable Koni® gas-filled shocks on a Quadra-Shock performance suspension give you flexible control. A Traction-Lok rear axle with a 3.73:1 drive ratio has a mean streak. It bites when cornered.

Below, on 16x7 alloy wheels: unidirectional Goodyear Gatorback high-performance tires. The same tires that broke the .95-g barrier in skidpad tests. and for fade-resistant stopping, power disc brakes on all four wheels. Enthusiasts like performance.

About value.

The SVO is so completely equipped, you only need to make three decisions: Yes or no to leather seats and a sunroof. And which color. But, because production of the SVO is limited, you need to make your decisions quickly. When they're gone, they're gone.

Mustang SVO. What the enthusiast wants, the enthusiast gets.

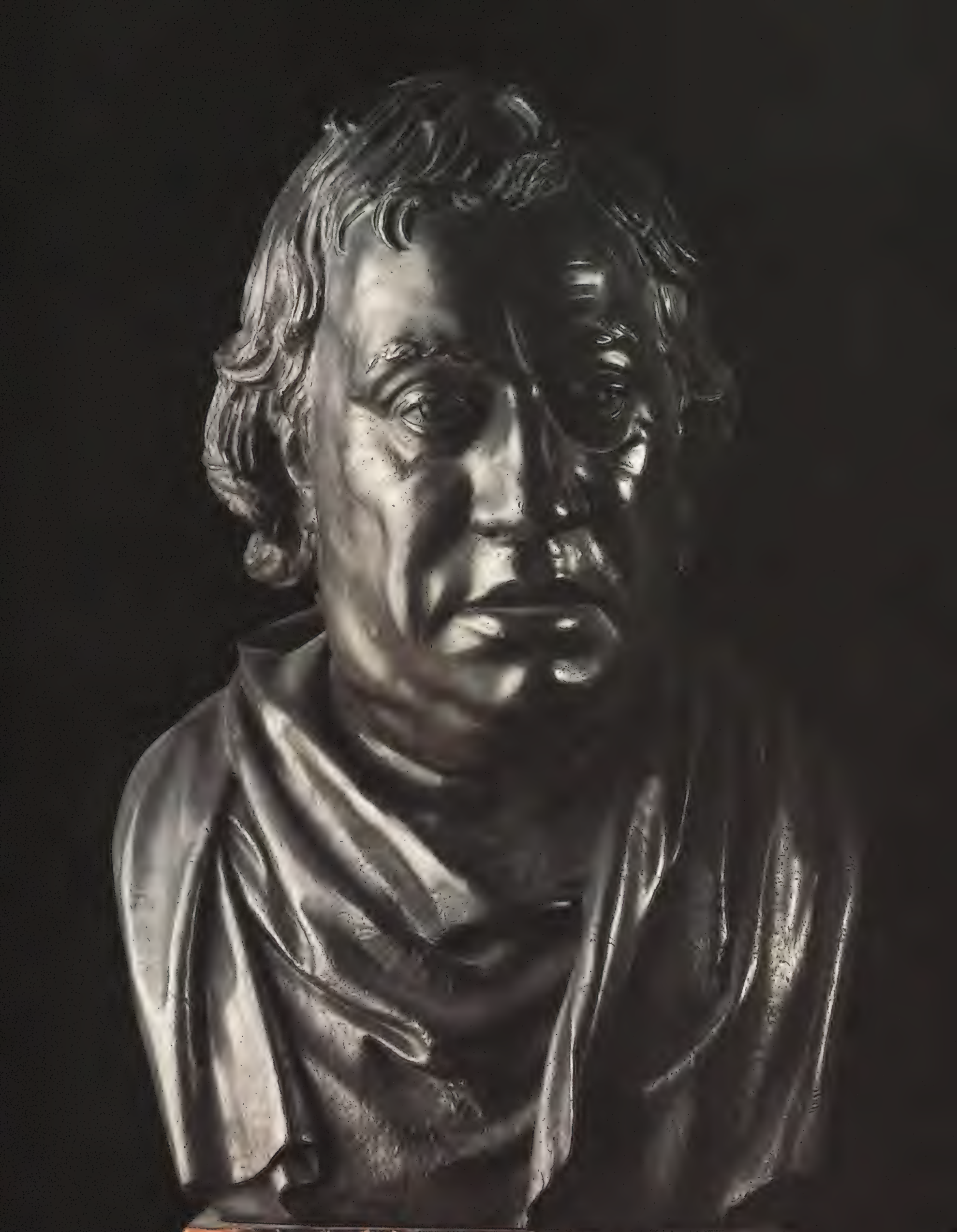
*Based on SAE standard J-1349.

Have you driven a Ford... lately?

Ford

Ford SVO

Get it together–Buckle up.


RAMBLER

By Israel Shenker

A Samuel Johnson celebration recalls his wit and wisdom

On the bicentenary of the Great Cham's death, all those who love the English language pay homage to his troubled, incandescent genius

Cast of Joseph Nollekens' bust of Johnson (opposite) notes *The Rambler*, title of the columns he wrote. Above is a volume of the *Dictionary*, published 1755; it rests in the Gough Square house Johnson wrote it in.

Samuel Johnson lies in Westminster Abbey, but his robust genius lives in his cadenced prose, the pithy splendor of his poetry, the turbulent wit seething in the torrents of his conversation. On the bicentenary of Johnson's death, as the year 1984 closes, there have been memorial services, laying of wreaths, distribution of laurels, pilgrimages to the scenes of his life, exhibitions saluting his triumphs, scholarly conferences devoted to his life and work.

At Pembroke College, Oxford, where Johnson resided as a penurious student, a commemorative conference drew scholars intent on Johnsonian minutiae. While audiences nodded in the heat of ancient, airless rooms, colleagues probed the intricacies of Johnson's relations to life and law and language, to friendship and folly. One academic examined the significance of an engraving of Johnson-as-ghost returned to chide a biographer; another specialist surveyed the earnings of Johnson-as-ghostwriter. A third questioned whether, in his celebrated friendship with Mrs. Thrale, Johnson had played the role of a father, or sought the comfort of a surrogate mother. To illustrate problems of definition such as those that are faced by lexicographers—how, say, to define the taste of a pineapple?—David Nokes of King's College, London, distributed chunks of the fruit to his listeners.

Pembroke's library boasts the very desk on which Johnson is said to have composed his memorable Eng-

Hyde Collection, Somerville, New Jersey

Johnson married Elizabeth Porter, portrayed here by anonymous 18th-century artist, called her "Tetty."

The house in Lichfield, Staffordshire, where Johnson was born on September 18, 1709, is now a museum.

lish dictionary, and learned visitors surreptitiously stroked the dark, hallowed surface. In London, Johnsonians traipsed round Bolt Court, where Johnson died, and visited the nearby house at 17 Gough Square, where he lived and worked on his dictionary. Some were tempted round the Midlands along the "Johnson Trail," and notably to the town of Lichfield and the house where the great man was born (left).

Of stalwart morality and ready compassion, Johnson was obsessed by a conviction of sin; a fount of vigorous common sense, he was oppressed by the mysteries of unbounded eternity; wondrously productive, incorrigibly indolent; greatly solemn, indulgently playful. "That great Cham of literature," novelist Tobias Smollett dubbed him, assimilating Johnson to the rulers of Tartars and Mongols. "Rough Johnson, the great moralist," Byron proclaimed, and Oliver Goldsmith, acknowledging the roughness of the manner, insisted that "no man alive has a more tender heart. *He has nothing of the bear but his skin.*" "The gigantic body," wrote Thomas Macaulay, "the huge massy face, seamed with the scars of disease, the brown coat, the black worsted stockings, the grey wig with the scorched foretop, the dirty hands, the nails bitten and pared to the quick."

This was the uncommonly disordered figure given to

compulsive, involuntary movements, but possessor of formidable gifts: author of the first great English dictionary; of *The Rambler* and *The Idler*, collections of artful, moralistic, periodic essays; of *Rasselas*, an exotic tale attacking facile optimism and warning that life is a vale of sorrow; of *The Vanity of Human Wishes*, philosophy descanted in verse; of a magisterial edition of Shakespeare; of eloquent prayers impregnated with awe and fear and painful longing; of letters amiable and instructive, uplifting, consolatory, even devastating; of talk that dazzled. Johnson's intellect soared beyond the boundaries of discipline.

For all the prolixity and Latinate locutions, Johnson was a master of the lapidary phrase:

"Patriotism is the last refuge of a scoundrel."

"If you are idle, be not solitary; if you are solitary, be not idle."

"The general condition of life is so full of misery, that we are glad to catch delight without inquiring whence it comes, or by what power it is bestowed."

On the survivor of an unhappy marriage remarrying: "The triumph of hope over experience."

In his monumental *Life of Johnson*, a biography with few peers, James Boswell preserved and transmitted the splendor of his subject, presenting a portrait at once intimate and far-ranging. Boswell's uncle said that Johnson was "born to grapple with whole libraries," and, conveniently enough, it was at the bookshop of Johnson's father that the initial struggle occurred. Johnson's mother was 40 years old, and the birth was difficult. Young Sam was entrusted to a wet nurse, and he returned blind in one eye, deaf in one ear and marked by scrofula—tuberculosis of the lymph glands. Johnson's aunt said she "would not have picked such a poor creature up in the street."

From early on he read prodigiously, with great powers of concentration and formidable memory, and he excelled as a student. Asked later how he had acquired so great a facility in Latin, he replied: "My master whipt me very well. Without that, Sir, I should have done nothing." Though his father was hopelessly in debt, Johnson went off to Pembroke, hoping to advance by literature and wit. Poverty closed every avenue. A solicitous fellow student had a pair of new shoes for Johnson deposited outside his door; the object of charity indignantly threw them away. After 13 months at Oxford he returned to a worried mother, a father in straitened circumstances, and a future that suggested no outlet even for genius.

Johnson repeatedly succumbed to depression and the fear that he was going mad. Some relatives and friends recognized his gifts, and among those who offered encouragement was Elizabeth (Tetty) Porter, who was 20 years older than he. "This is the most sensible man that I ever saw in my life," she said, and when her husband died she defied her children's protests and married Johnson. Her legacy was soon depleted, and after an abortive trial at schoolmastering he left for the great city of London, metropolis of slums and slops, overcrowding and misery, violence, drunken debauchery and slender hopes.

The young provincial entered on a new, squalid existence, squeezing out shillings as a hack writer. "No man but a blockhead ever wrote, except for money," he maintained, and he turned his fluency to any assignment that promised the price of a bun for his tea.

"I know not whether more is to be dreaded from streets filled with soldiers accustomed to plunder, or

Accounts book at Pembroke College, Oxford, records Johnson weekly expenditure of about eight shillings.

The author's In the Footsteps of Johnson and Boswell: A Modern Day Journey Through Scotland *has been issued in paperback by Oxford University Press.*

National Portrait Gallery, London

Influential Earl of Chesterfield aroused Johnson's wrath by his neglectful patronage of the *Dictionary*.

from garrets filled with scribblers accustomed to lie," he wrote, and characterized the scribbling fever as "the epidemical conspiracy for the destruction of paper."

Parliament had banned publication of its debates, and for the *Gentleman's Magazine* Johnson contrived wondrously imaginative accounts with identities hardly concealed: Walpole was Walelop, Pitt was Ptit. Since Johnson had slender authentic material for his reports—sometimes only the names of the speakers and their place in debates—his products bore small resemblance to Parliament's, but he devised eloquent, persuasive speeches on both sides of the issues. The public took his compositions for faithful reporting.

The conflicts and trials of his own existence and his own hopes of advancement echo in his writing. His *Life of Savage*, the biography of an unfortunate poet and friend who died in debtor's prison, was a cautionary tale whose author was himself at least twice arrested for debt. But his reputation for intelligence, learning and language prospered. In 1746, financed by seven booksellers, he set out to compile an authoritative English dictionary. (Over the years, he was backed up by six impoverished assistants—five Scots and one Englishman.) Tetty and he moved into the commodious house on Gough Square, and the attic became the dictionary office.

Johnson composed a "Plan," addressed to Lord Chesterfield: "I knew that the work in which I engaged is generally considered . . . the proper toil of artless industry; a task that requires neither the light of learning, nor the activity of genius, but may be successfully performed without any higher quality than that of bearing burdens with dull patience, and beating the track of the alphabet with sluggish resolution."

Struggling with the procrastination that imperiled his progress, Johnson devoured great works of literature, history, philosophy, theology and science, marking passages for citations of superior usage, in part, as he put it, to "intersperse with verdure and flowers the dusty desarts of barren philology." His assistants transcribed, cut and pasted. Johnson provided the definitions, furnished the etymologies and wrote introductory accounts on history and grammar.

He thought the work would take three years, and it took about eight. On the eve of publication, Chesterfield argued that English was in a state of anarchy and proposed Johnson as its dictator. It was not a suffrage that Johnson accepted. He was angered by Chesterfield's disinterest as the *Dictionary* had progressed.

Smarting from years of Chesterfield's neglect, Johnson wrote him: "Is not a patron, my Lord, one who looks with unconcern on a man struggling for life in the water, and, when he has reached ground, encumbers him with help? The notice which you have been pleased to take of my labours, had it been early, had been kind; but it has been delayed till I am indifferent, and cannot enjoy it; till I am solitary, and cannot impart it; till I am known, and do not want it."

In *The Vanity of Human Wishes* Johnson had written: "There mark what ills the scholar's life assail,/Toil, envy, want, the garret, and the jail." In a revised edition, "garret" was replaced by "patron."

Lexicographer: "A harmless drudge"

In what he termed the "boundless chaos of a living speech," Johnson found niches for favorite conceits. His father had been harried by collectors of excise; Johnson accordingly defined "excise" as "A hateful tax levied upon commodities, and adjudged not by the common judges of property, but wretches hired by those to whom excise is paid." (The Commissioners of Excise wanted to sue for libel, but were finally dissuaded.) "Network" became fixed as "Any thing reticulated or decussated, at equal distances, with interstices between the intersections." Johnson delighted in teasing the Scots, and he defined "oats" as "A grain, which in England is generally given to horses, but in Scotland supports the people." A "patron" was "Commonly a wretch who supports with insolence, and is paid with flattery." And "lexicographer" was "A harmless drudge."

"Every other authour may aspire to praise," John-

son suggested. "The lexicographer can only hope to escape reproach." When a woman asked him why his *Dictionary* defined "pastern" as the knee of a horse, he replied: "Ignorance, Madam, pure ignorance."

The massive, two-volume work nonetheless made "Dictionary Johnson" famous. In time for the initials A.M. to appear on the title page, Oxford awarded him a master's degree, and Trinity College, Dublin, later gave him an honorary doctorate.

While working on his dictionary, Johnson twice a week during two years, struggling against deadlines, wrote essays for *The Rambler*. They were widely pirated, and reprinted at least ten times during Johnson's lifetime—testimony to aphoristic finesse, classical learning and moral fervor.

Johnson's beloved Tetty, who had become inured to disappointment and addicted to indolence and drink, died before the *Dictionary* established Johnson's fame. She and her husband had suffered years of hardship as well as discord and separations, and her death enforced in Johnson a deep sense of guilt and bereavement. He wrote that her departure left him feeling "broken off from mankind . . . without any certain direction, or fixed point of view."

National Portrait Gallery, London

Johnson's Boswell, portrayed circa 1785, the year he published his *Journal of a Tour to the Hebrides.*

Courage Ltd., London

Widowed Hester Thrale, friend of Johnson's, hurt him deeply when she married musician Gabriel Piozzi.

In 1762, the Crown awarded him a pension of £300 a year, a disturbing beneficence for the man whose *Dictionary* glossed "pension" by noting that "In England it is generally understood to mean pay given to a state hireling for treason to his country." Friends soothed his compunctions and allayed his anxieties, and he wrote Lord Bute, the King's chief minister: "You have conferred your favours on a man who has neither alliance nor interest, who has not merited them by services, nor courted them by officiousness; you have spared him the shame of solicitation, and the anxiety of suspense."

Balanced phrases, imaginative metaphors, pungent advocacy—all these abounded in his talk. Night after night, Boswell took painstaking notes, and observed: "Mr. Johnson appeared to me like a great mill, into which a subject is thrown to be ground."

Much of Johnson's verbal treasure was scattered in a favorite tavern during gatherings of The Club that united Johnson and his friends, notably Goldsmith, Edmund Burke the statesman, David Garrick the actor, and Sir Joshua Reynolds the painter. Reynolds noted that Johnson "may be said to have formed my mind and to have brushed off from it a deal of rubbish." In his 1977 biography of Johnson, W. Jackson Bate writes of Johnson's "turning a thing upside down and shaking the nonsense out of it."

Johnson loved the give-and-take of conversation,

In Number 17 Gough Square, off Fleet Street, Johnson and staff labored for years on *Dictionary*.

sometimes brilliantly defending propositions he really opposed, and delighting in his mastery and reputation. "I hate a fellow whom pride, or cowardice, or laziness drives into a corner, and who does nothing when he is there but sit and *growl*," Johnson said. "Let him come out as I do, and *bark*."

Johnson acknowledged that he talked for victory. After one engagement he said to Boswell, "Well, we had good talk." "Yes, Sir," Boswell rejoined, "you tossed and gored several persons." "There is no arguing with Johnson," said Goldsmith, "for when his pistol misses fire, he knocks you down with the butt end of it":

"Sir, your wife, *under pretence of keeping a bawdy-house*, is a receiver of stolen goods."

"Sir, a woman's preaching is like a dog's walking on his hinder legs. It is not done well; but you are surprized to find it done at all."

When Boswell complained that late nights and thick port were doing him in, a fellow Scot rejoined: "One had better be palsied at eighteen, than not keep company with such a man."

Boswell assiduously collected famous associates, and reveled in his friendship with Johnson. At Boswell's urging, the two friends set off in 1773—Johnson at age 63, Boswell some 30 years younger—on an arduous trip through the Scottish Highlands and Hebrides, in primitive regions largely bereft of the refinements of civilization, offering subjects for wonder and conversation with people whom Johnson found fascinating.

On their return to beloved London—"When a man is tired of London, he is tired of life," Johnson maintained—Johnson set to work on his chronicle of the trip. Boswell's *Journal of a Tour to the Hebrides*, which he kept during the trip with Johnson, did not appear until some years later.

Johnson's fame made him a natural choice as author of a series of biographies of English poets, and the *Lives of the Poets* displayed his critical acuity, poetic insights, ready sympathy and hack-writer's professionalism. While struggling with the assignment he wrote Mrs. Thrale: "I am seeking for something to say about men of whom I know nothing but their verses, and sometimes very little of them."

Gifts of wisdom to needy brothers

For years, during weeks or months at a time, Johnson lived with the Thrales—Hester and her husband, Henry, a prosperous brewer and member of Parliament—as one of the family, cosseted by wealth and charmed by the intelligent, spirited, attractive Hester, who knew him at his best and also in the depths of his "vile melancholy." After her husband's death she married an Italian musician, Gabriel Piozzi, and the friendship with Johnson ended; but the memory of happier days was preserved in the anecdotes and letters that she published.

"In a man's letters," Johnson once wrote her, "his soul lies naked," and his compressed, elegant phrases, words unerringly targeted, sparkle through the intimate correspondence. In many compositions that were credited to others, Johnson, with unfailing charity, when moved by some great issue or petitioned by some worthy friends, contributed the bounty of his wisdom. "It is sufficient that our brother is in want," he counseled. "By which way he brought his want upon him, let us not too curiously enquire. We likewise are sinners."

When the Rev. William Dodd was sentenced to death for forgery, Johnson secretly wrote Dodd's appeal, and when that failed, went on to write his farewell. When someone later expressed doubts that Dodd could have composed prose so telling, Johnson responded: "Depend upon it, Sir, when a man knows he is to be hanged in a fortnight, it concentrates his mind wonderfully."

A passionate defender of the Crown, he opposed the American struggle for independence. "I am willing to love all mankind, *except an American*," he said,

DISCOVER
THE SENSE
OF
Rémy

REMY MARTIN COGNAC

EXCLUSIVELY FINE CHAMPAGNE COGNAC.

Imported By Rémy Martin Amerique, Inc., N.Y., N.Y. 80 Proof

A Johnson miscellany

I have, all my life long, been lying till noon. Yet I tell all young men, and tell them with great sincerity, that nobody who does not rise early will ever do any good.

A cucumber should be well sliced, and dressed with pepper and vinegar, and then thrown out, as good for nothing.

I would advise no man to marry, Sir, who is not likely to propagate understanding.

Difficult do you call it, Sir? I wish it were impossible. [Of the performance of a celebrated violinist.]

Marriage has many pains, but celibacy has no pleasures.

Integrity without knowledge is weak and useless, and knowledge without integrity is dangerous and dreadful.

A fly, Sir, may sting a stately horse and make him wince; but one is but an insect, and the other is a horse still.

Sir, your levellers wish to level *down* as far as themselves; but they cannot bear levelling *up* to themselves.

Let me smile with the wise, and feed with the rich.

It matters not how a man dies, but how he lives. The act of dying is not of importance, it lasts so short a time.

That fellow seems to me to possess but one idea, and that is a wrong one.

I have got no further than this: Every man has a right to utter what he thinks truth, and every other man has a right to knock him down for it. Martyrdom is the test.

An odd thought strikes me:—we shall receive no letters in the grave.

GOD bless you, my dear! [Last words; December 13, 1784.]

and described one proposition of the American Congress as "too wild for folly and too foolish for madness." In *Taxation No Tyranny* he argued that the Americans, defended by Britain, were rightly obliged to contribute taxes. "How is it," Johnson demanded, "that we hear the loudest yelps for liberty among the drivers of negroes?"

"Human life is everywhere a state in which much is to be endured, and little to be enjoyed," he maintained, and wrote of his own trials as "a life diversified by misery, spent part in the sluggishness of penury, and part under the violence of pain, in gloomy discontent, or importunate distress." His final years were dogged with increasingly severe illness, including dropsy, emphysema, arthritis, heart failure and stroke. "Life protracted is protracted woe," he suggested, and wrote of existence "supported with impatience, and quitted with reluctance." "It is not a very happy state," he wrote, "when the mere preservation of life, becomes its chief business, yet such is the lot of many."

On signal occasions—starting a new project, marking the anniversary of his wife's death, reviewing the year at Easter—he sought to ensnare his will with resolutions of reform: "To apply to study. To rise early. To study religion. To go to church. Put books in order. Scheme life." But the maelstrom of life and the temptations of congeniality were stronger still: "I have made no reformation, I have lived totally useless, more sensual in thought and more addicted to wine and meat."

Guilt-ridden, he composed prayers praising God's benevolence and beseeching his mercy. "Strengthen me O Lord, in good purposes, and reasonable meditations. Look with pity upon all my disorders of mind, and infirmities of body."

"Old dread-death and dread-devil Johnson," author William Cobbett called him, and the philosopher Jeremy Bentham stigmatized Johnson as "that pompous preacher of melancholy moralities."

But Johnson was convinced that the "secret horrour of the last is inseparable from a thinking being, whose life is limited, and to whom death is dreadful." "O Lord, calm my thoughts, direct my desires, and fortify my purposes," he prayed. Knowing his strengths, he pleaded for excuse of his weaknesses: "Have mercy upon me, O God, have mercy upon me; years and infirmities oppress me; terrour and anxiety beset me."

The final judgment remained to be spoken, but Johnson's immortality has now had 200 years of trial, and the verdict is secure.

One of the greatest of Johnson portraits was painted about 1775 by his devoted friend Joshua Reynolds.

Courage Ltd., London

Our Space Program.

Most people think of countries having space programs. At RCA, we have a bigger one than most countries.

Since 1958, we've built more than 80 satellites and been involved in 70 other space missions. With over 40 more satellites planned for launch during the next five years.

In our space program, RCA-built satellites have monitored weather patterns so accurately that no major storm has gone undetected for the past 18 years. Which just reflects

our strength and reliability in the development of meteorological satellites.

Aboard the Space Shuttle, RCA is also a pioneer. It was our cameras and video equipment that sent back the dramatic, live television pictures of every shuttle mission. And we'll continue to do so over the next decade.

In communications, where RCA has built more than 75 satellites and sub-systems for ourselves, NASA, and many other major corporations, we're continuing to break new ground by building the first commercial Direct Broadcast Satellite, scheduled for launch in 1986.

RCA
ONE OF A KIND

Now if all this surprises you, be prepared for a few more. In fact, if you'd like to learn more about RCA as a corporation, an investment or as a place to work, write for "This is RCA," P.O. Box 91404, Indianapolis, Ind. 46291.

After you read it, you'll know why in communications, electronics and entertainment, RCA is one of a kind.

Below, just a few of the satellites that RCA has built or is currently building. (Left to right) RCA Satcom IIIR & IV, Spacenet, GSTAR, RCA Satcom V, STC/DBS, ACTS (Center), USSB, Rainbow, ASC, RCA Americom Ku, Anik-B, RCA Satcom I & II. (Orbiting the globe, read clockwise from upper left) Dynamics Explorer, TIROS-N, Nova, Navsat, DMSP.

Breezing past a lee shore, Sri Lankan *oruwas* are guided by steering oar, balanced by single outrigger.

Sunset for working sail

Around the world, more and more boats are becoming endangered species

Perhaps because they command devotion from the men who sail them, perhaps because they have done more than their share of the world's work, sailboats have always been regarded as feminine. To sail by the wind alone for purposes of commerce requires great skill, hardihood and ingenuity, and from time immemorial working sailboats have exhibited all sorts of rigs and hull shapes, depending on the seas they sail and the work they have to do.

For instance, to avoid the struggle and danger of coming about in heavy weather, the Sri Lankan *oruwa* (above) can be sailed from either end. To change direc-

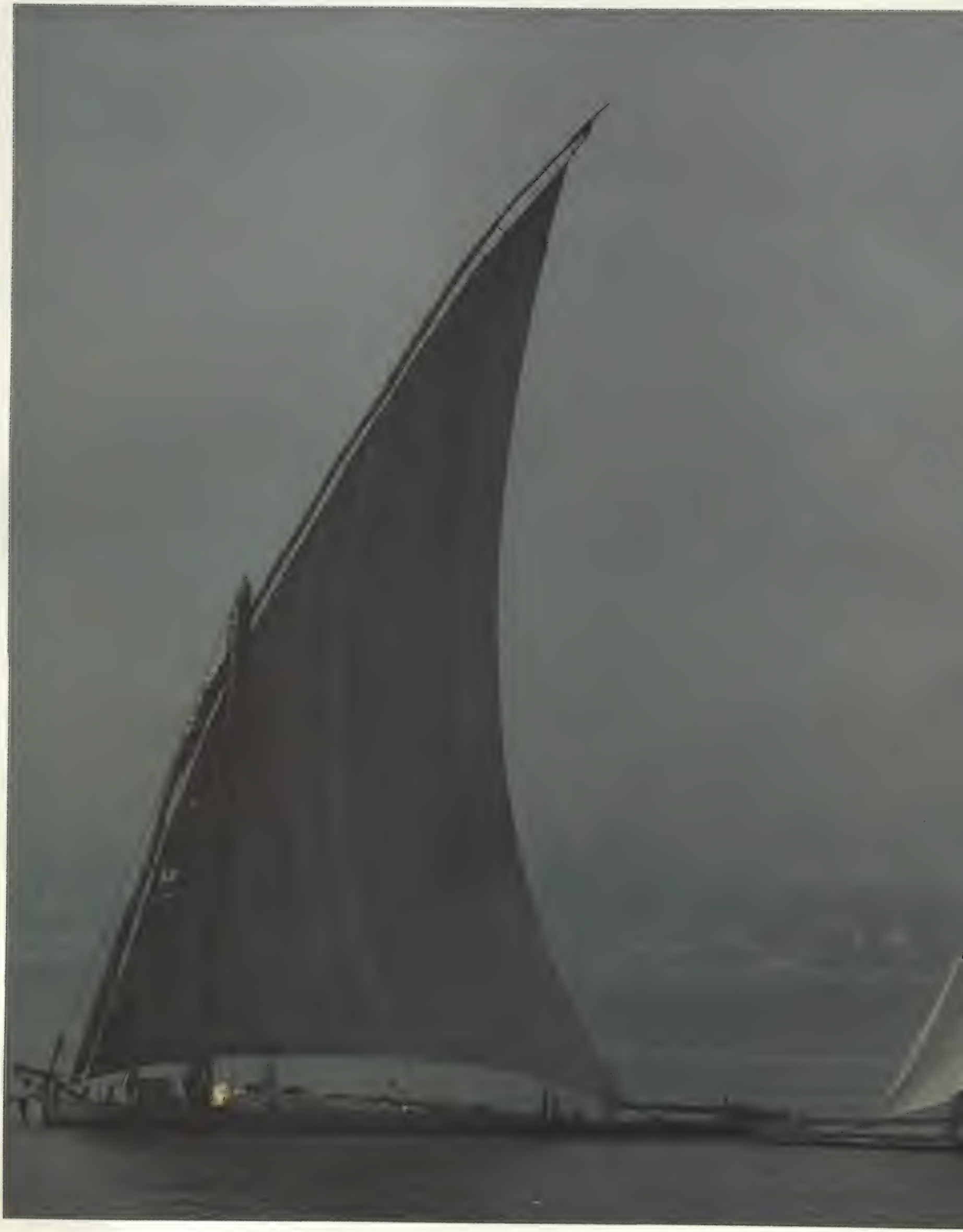
Boats are threatened with extinction even though they can be sailed from either end to avoid the trouble of coming about in high seas. The outrigger also supports platform used for setting prawn nets.

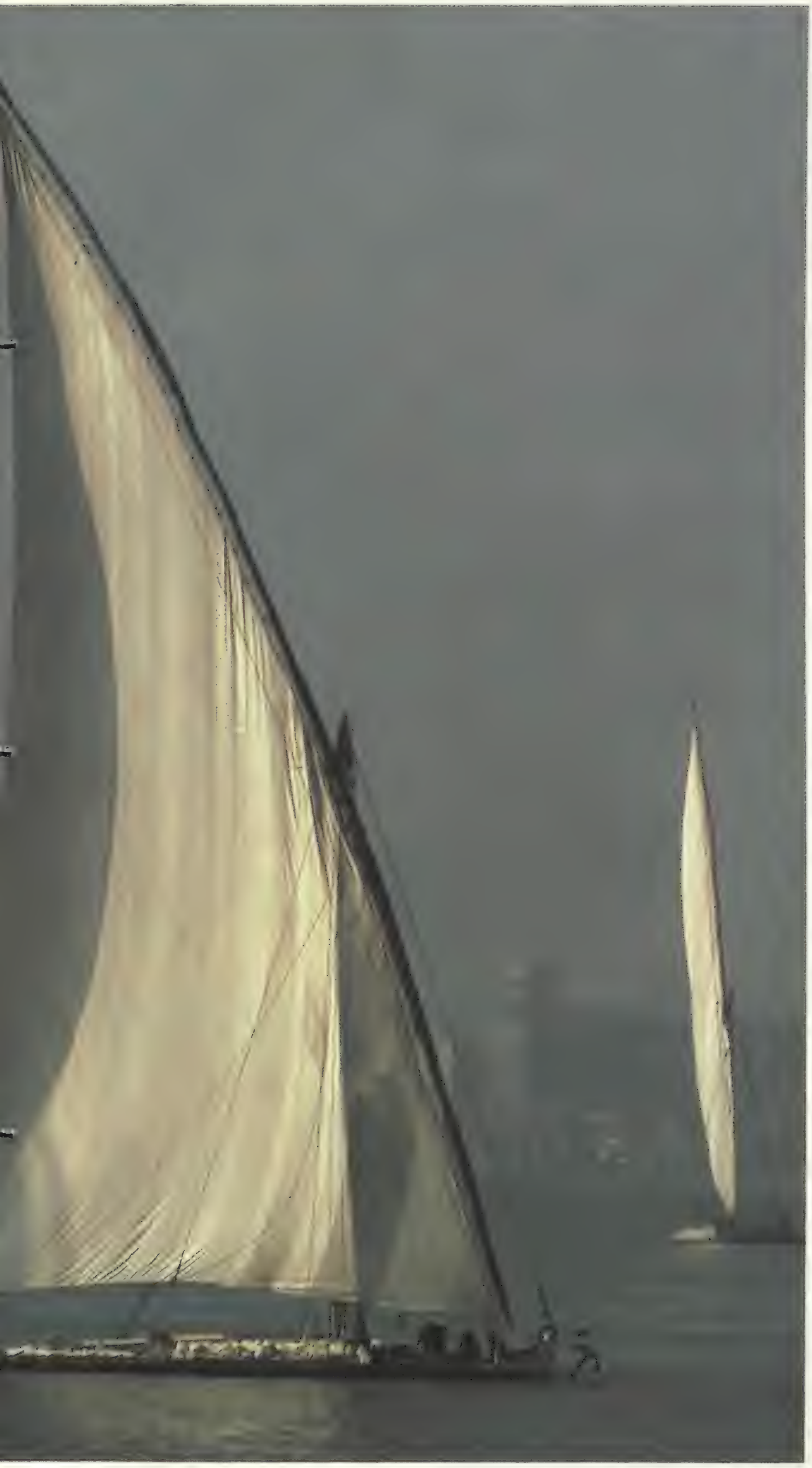
tion the crew simply releases one end of the sail from the "bow," pulls the rig between the twin masts, then attaches the luff of the sail to what was the stern, which becomes the bow. Such adaptability has helped make the *oruwa* a fine, fast sailer for fishing offshore in the Indian Ocean—and a good handy platform for netting prawns in calm waters closer in.

Bizarre sail designs are still being invented (SMITHSONIAN, December 1981). Yet according to marine historians Neil Hollander and Harald Mertes, who spent three years aboard working sailboats all over the world, the *oruwa* is one of many craft that are swiftly dying out. Among the causes: the spread of engines and the decline of fishing grounds. In the *oruwa*'s case, the keel is built from a jackfruit tree, and Sri Lanka has outlawed the cutting of any fruit trees at all.

On the following pages are still more working sailboats threatened with extinction. To commemorate them Hollander and Mertes have brought out a new book, *The Last Sailors* (St. Martin's Press). They are also setting up a Museum of International Sail so that future generations of sailors will be able to study these and other boats without having to reconstruct them from rotting bones dug out of the tidal mud.

Photographs by Neil Hollander and Harald Mertes





Barging up the Nile

Every tourist in Egypt has seen the great scimitar curve of sails like these, gracefully pushing deep-laden vessels up and down the Nile. The boats are known as *aiyassas*. Their lateen spars, some of them as much as 100 feet long, can be (laboriously) taken down to pass under Cairo's many low bridges; their hulls, with broad beams and deep holds, can be loaded almost to the gunwale. Working sail probably originated in Egypt about 5,000 years ago, because the Nile (ancient Egyptians called it "the gift of the gods") is such a supremely efficient waterway. It has a prevailing wind that blows from north to south, pushing vessels upstream, and a current flowing south to north, so a working sailboat can always move somehow. Hundreds of *aiyassas* still continue to ply their river trade, but many are falling into ruin. Diesel-powered tow boats hauling strings of barges, plus the loss of traditional cargoes like hay and clay pots, are putting them out of business.

A Java Sea schooner

Plowing the warm seas off Sumatra, the Indonesian *pinisi* (left and below) looks like a classic, gaff-rigged schooner, but is really a ketch capable of carrying three jibs. These beautiful vessels, often nearly 100 feet long, with ornately carved sterns, have no center rudder. Instead, their ancient design calls for a huge, highly unmanageable steering oar. *Pinisi* cargoes once included such succulent delicacies as sea slugs, shark fins and birds' nests (for soup), are now mainly confined to timber from Borneo. And though they may go faster under sail than with an engine, *pinisi* owners more and more have to worship this "new god" in order to maintain the regular delivery schedule now needed to win contracts from shipping agents. And soon after an engine is installed, they stop using, or even keeping sails aboard.

Lumber sloop in Chile

Offshore on a misty morning, the *lancha* could be an old-fashioned sloop found along the coast of Maine (opposite). But she is an endangered native of the rugged islands off southwest Chile, where *lanchas* still manage to hang onto existence by carrying lumber to the mainland town of Puerto Montt. *Lanchas* are built by their owners without any plans, not even a sketch in the sand. Rough-hewn and barely symmetrical, they are nevertheless tough and deep-drafted, as they have to be, to haul heavy loads in tricky, frigid waters, buffeted by winds from the "Roaring Forties." Islanders have been making these boats for centuries. But bulldozers are at work on a new highway that will travel the length of Chile. When that happens, trucks will take over the timber run to Puerto Montt.

Brazilian 'butterfly'

Poor fishermen on the remote northeast coast of Brazil need boats that can sail fast and be easily trundled in and out of the water because the area has a long flat beach and changeable coastal breezes. To ply their trade they first put a triangular sail on light, balsalike rafts, and that design eventually refined itself into the strange, butterflylike craft at left. Called the *jangada*, it boasts a rough dagger board (like a modern Sunfish) and a mast that bends to change sail shape and performance, and also can be placed in 11 different deck slots depending on the power and direction of the wind. But fish grow scarcer, wood more expensive, and the ingenious *jangada* may be doomed.

An Indian 'clipper'

The Indian equivalent of the Yankee clipper ships that once groaned with canvas as skippers crowded sail on every imaginable spar, the *dhoni* is a big, deep cargo boat with almost more different sails (up to 18) than its crew can put a name to. Often with three masts, it also sets studding sails from extra spars sticking out to port and starboard, as well as one below its huge bowsprit. Most spectacular is a kind of staysail flown from a boom heavy enough to be a second, semifixed bowsprit, something like the spinnaker poles that are used on racing yachts. But *dhoni* crews have grown weary of all those sails and the ships are rapidly switching over to labor-saving diesel power.

Even the Chinese junk

The world's most venerable working sailboat is the junk (left), for when Europeans were still just paddling around, China had already invented the compass and launched multimasted junks that carried tons of cargo. The craft's most visible virtue is sails reinforced with bamboo battens, giving them a steady and highly efficient shape. Battens also make reefing (reducing sail) almost as easy as pulling up a Venetian blind. Not long ago there were thousands of working junks. But today, Hollander and Mertes found, not a single sailing junk is registered in Hong Kong. Those still working under sail alone come from the mainland. And they are dying out, as engines begin to provide not only propulsion but electric power for TV and radios.

Doomed by the High Dam

Ghostly *manzalas* are ideally suited to a threatened environment (opposite). They are fishing boats for Lake Manzala, which lies at the mouth of the Nile. Most of the lake is only three feet deep. *Manzala* hulls, racy-looking, like low-slung speedboats, have neither keel nor centerboard, and draw only a few inches. Yet with their tall sails they can plane in a good wind, held upright by crewmen hiked out on special poles. When fishing, the boats drag a net between them which, when full, is easily hauled aboard over the low gunwale and broad, downsloping decks. The High Dam at Aswan, however, has changed the Nile's current patterns and the lake's shallow depths are rapidly silting up. The unchecked growth of the water hyacinth also threatens to choke the lake. A day is coming when even *manzalas* will be unable to navigate there.—*Timothy Foote*

Excite your uncomm

Honda designed this special Accord for the sensory pleasures of driving.

For your sense of power, Honda's new electronic fuel injection delivers quick and smooth acceleration.

For your sense of control, the Accord SE-i combines front-wheel drive with our precise variable-assist power steering.

And to satisfy your sense of style and comfort, Honda covered the anatomically designed seats in genuine leather.

What's more, the air conditioning, power Moonroof, windows, and doorlocks all come standard. Even the sophisticated stereo system is included.

That's just plain common sense.

HONDA

...on senses. Accord SE-i

By Jeanne McDermott

Biologists begin eavesdropping on 'talking' trees

Far from the tall, silent types they have been taken for, trees may be more garrulous than anyone has guessed.

When attacked by tent caterpillars, willows can do more than weep—they may send messages to their neighbors to warn them of the danger

A drive through the countryside of Eastern Pennsylvania offers a welcome respite from the hustle of the city, especially in the spring. Sunlight showers through an oak forest whose leaves are still curled tight as a fist, ready to open as winter relinquishes its grip. In the orchards, apple trees stand in neat rows, arranged in splendid isolation, pink blossoms fluttering in the wind. The pastel landscape breathes a bucolic peace, sylvan tranquility. Or so it seems. "I look at trees in a different way now," says Ian Baldwin, doctoral student in biology at Cornell University.

Indeed. Baldwin, along with David Rhoades, a zoologist at the University of Washington, and Jack Schultz, an entomologist at Pennsylvania State University, have been eavesdropping on leaves for the past three years and much to everyone's surprise, including their own, they have evidence that trees "talk." Not to you and me but to each other. While these scientists are far from identifying the nuances of a dialect or the rules of a grammar, they suggest that there is a chemical language of the forest and that it functions as an early-warning system to protect trees from insect attack. The hypothesis is not yet out of the woods, but it marks a marvelous turning point in our view of trees.

The idea that trees talk seems, at first, worthy of Dr. Dolittle or Grimm's fairy tales. Who would believe that trees truly have more bark than bite? Who would imagine that if a tree falls in the woods and no one is around, its fellow trees might hear the crash? The concept of a tree—as an abiding fixture of the landscape, long-lasting pillar of the plant kingdom, alive only in a vegetable way—is deep-rooted. Noah did not load the Ark, two by two, with saplings and seedlings. You might say that trees have been taken for granted and underestimated ever since.

Davey Rhoades, who has a doctorate in both chemistry and zoology, was the first to suggest that trees can communicate. At 43, Rhoades combines an adventurous streak with a naturalist's quiet desire to understand the broad picture. His office, with its working

clutter of paper stacks and half-shut drawers, overlooks droopy evergreen treetops. "I wasn't looking for plant communication," he says. "I stumbled on it. It was serendipitous. I was looking at how plants defend themselves from insect attack."

In the spring of 1979, Rhoades worked at a field site outside Seattle, studying what happens to willow trees when tent caterpillars attack. Rhoades paired the trees into two groups, one for the experiment and one nearby for the control. He infested the experimental trees with caterpillars and left the control trees alone. Fourteen days later, he plucked leaves off the experimental trees, fed them to caterpillar larvae in the laboratory and found that these caterpillars grew quite slowly. What surprised Rhoades was that a diet of leaves from the unattacked control trees made the laboratory caterpillars grow slowly too. Both trees had apparently flooded their leaves with an unsavory chemical that discouraged the insects' growth.

What made the unattacked trees produce a nasty-tasting chemical? Presumably, they had no reason to arm themselves since they had not been attacked. Did the experimental trees slip the control trees a signal, Rhoades wondered. He made sure that there wasn't any connection between the roots of the plants and concluded, at a talk he gave in 1982, that the trees did communicate by releasing a chemical into the air.

"Communication was the most parsimonious explanation of the data," says Gordon Orians, professor of zoology at the University of Washington and Rhoades' colleague. It was also a radical and unprecedented explanation that raised more than a few eyebrows. While Orians is quick to declare that Rhoades is an extremely careful experimenter, he suspects that this initial work on tree communication will look "quaint and fuzzy" ten years from now when more far-ranging studies have been done.

Plants are not passive, helpless bystanders

"I should caution you," says Tom Eisner, Cornell biologist and a founder of the field of chemical ecology. "I don't feel that the evidence for tree communication is quite compelling yet. For any unusual idea, the evidence has to be ironclad. But the theoretical basis—that it pays to eavesdrop on the troubles of one's neighbors—*is* compelling." In fact, the essence of the research so excites Eisner that he is proposing to teach a course next year on plant behavior, the first one ever offered at Cornell.

Rhoades seems comfortable with the fact that he has gone out on a scientific limb, yet is at a loss to explain why he noticed something that other researchers missed. "The plant-communication experiment could have been done a hundred years ago," he says, adding that it did not involve any fancy, high-tech equipment. He admits that his own thinking was shaped by the knowledge that insects frequently communicate using airborne chemicals called pheromones. But at the base of Rhoades' search lies a keen and profound dissatisfaction with the traditional view of plants.

That view maintained that plants are passive, helpless bystanders, acted upon rather than acting upon their environment. What sent it into bankruptcy was the observation that plants carry and release an impressive, ever-changing array of thousands of chemical

Illustrations by Robert Osborn

While some plants may protect themselves passively, others are ready and able to fight back when provoked.

compounds whose functions have still not been fully catalogued, inspected or analyzed. For years, botanists ignored these often exotic compounds, assuming them to be waste products without any crucial role in the plant's life. But eventually a few voices argued that plants are too thrifty to waste their energy manufacturing useless substances.

Meanwhile, scientists had discovered that plants possess uncanny ways to disarm their enemies, actively and on the spur of the moment rather than passively. Not only do plants hide behind their woody armor, they also fight back when provoked. In the early 1970s Peter Albersheim, a biochemist at the University of Colorado, launched a study on how fungi can trigger plants to produce antifungal substances known as phytoalexins. At the same time, biochemist Clarence Ryan at Washington State University discovered how potato plants produce a powerful inhibitory protein within hours of being munched by beetles.

"Like any other organism, plants have one common goal in life—to grow up and reproduce," says Baldwin. "In order to do that, they have to live long enough, they have to defend themselves." Suddenly, the mysterious compounds were seen to have a purpose. At least some researchers came to view plants more as if they were slow animals, forced by their immobility to develop in subtler ways. A plant cannot run away, bare its teeth or spray a foul odor. It can fold up its leaves or expose its thorns, but the most spectacular and unexplored defenses operate on a molecular level.

Trees excel at chemical defense. They have no choice. Trees may live for centuries, and thus longevity distinguishes them from other plants. Unlike weeds, trees stand and combat their enemies year in and year out from the same spot. A hundred different species of insects and nematodes, not to mention untold numbers of bacteria and fungi, chomp and devour, nibble and munch. "There's always something chewing on a tree. At the end of the season, every leaf has some damage," says Rhoades. Pests mutate easily and seemingly overnight concoct more virulent ways to attack a tree or more cunning tricks to avoid its countermeasures.

Weapons and tactics to deter and destroy

This "arms race" is a no-win situation even though trees spend more of their budget on defense than anything else. "What stops any arms race from spiraling out of control is the cost," says Rhoades. "Up to 50 percent of a tree may be composed of things that are defensive. These chemical compounds are costly to synthesize because they are often present in large quantities."

Trees concentrate their chemical weapons at the most vulnerable sites, the leaves, and employ a staggering variety of tactics to deter and destroy their insect enemies. Trees produce tannins; the same type of compound that gives the skin of the unripe apple its bitter taste also gives the insect a bad case of indigestion. They make alkaloids that wreak havoc with the insect's nervous system. They concoct dummy amino acids that the insect mistakes for the real thing and uses to produce defective proteins. Not only do the trees possess most of these unsavory chemicals from birth to death, but they can synthesize them on the spot, in hours or days. (Interestingly, these natural pesticides also keep us from eating many plants. Bruce Ames, biochemist at the University of California, Berkeley, suggests that they may even present a health risk in the foods we do eat.)

Of all the defensive tactics that trees muster, communication may be the most sophisticated and the most baffling. Are all trees equally fluent? Can oak trees talk only to oak trees? Do weeping willows understand the Sitka willows? Have insects learned how to jam a tree's message—for example, by attaching a counteracting chemical to the message molecules even as the insects are eating the leaves? No one knows.

It seems likely that trees communicate about more than defense. (When news of tree communication first came out, pundits suggested that trees might prefer to chat about Twiggy.) Rhoades thinks some topics are more likely than others. Communication may help synchronize flowering to facilitate cross-pollination and foil insects that eventually eat the fruit of the flower. For example, if the fruit on apple trees all ripens simultaneously, the apple maggots will not have

The author, who contributes frequently to this magazine, last wrote on fractals in December 1983.

An Interval of Time

One in a series of crystal sculptures based on the idea of passage in time and space from one state of being to another. *An Interval of Time* is in the collections of the Victoria and Albert Museum, London, and the Musée des Arts Décoratifs, Lausanne. By Peter Aldridge. Length 17". $27,500. An edition of fifteen. Signed Steuben.

Steuben Glass, 717 Fifth Avenue, New York, N.Y. 10022. 1-212-752-1441.
Steuben is part of Corning Glass Works and has been since 1918.

STEUBEN GLASS

as much time to reproduce—and to devastate the crop.

No one will really decipher what trees are saying until the chemical involved in communication is isolated. Rhoades is now in hot pursuit. He collects the gases emitted by leaves in a specially sealed, brightly lit laboratory. Clamping a petri dish over a torn leaf, he suctions the gases off, collects them in ampules and then analyzes the contents in the gas chromatograph, an instrument used for identifying unknown compounds. Rhoades flips through readouts from the gas chromatograph, long ribbons of paper covered with thousands of jerky spikes, each of which represents a unique molecule. It is next to impossible to pinpoint which peaks and troughs carry the meaningful signal without a lucky hunch or a lot of testing. To some scientists, the search would seem overwhelming, but Rhoades is optimistic. "The phenomenon of tree communication won't be established until we have our hands on an active plant product with which we can affect the plant's behavior," he says.

Rhoades is not the only one to hear trees talk. When Jack Schultz, who knew Rhoades from their days as graduate students at the University of Washington, heard about the communication experiments, he could not resist trying some of his own. At the time, Schultz was teaching at Dartmouth College in Hanover, New Hampshire, and was taking a census of the local insect populations, a project for which he had hired Ian Baldwin, then an undergraduate, to climb trees. After Baldwin took an intellectual interest in the tree-communication possibility, Schultz commandeered a few shelves in a crowded campus greenhouse for experiments.

Instead of working outdoors, Baldwin and Schultz potted 45 poplar plants. They placed 30 of them in a chamber together, and the remaining 15 in a faraway

Trees may coordinate defense to keep pests off guard, as Osborn's "oak leaves in a war room huddle" suggests.

Taste of toxic alkaloids or dummy amino acids from a forewarned plant can discourage the hungriest pests.

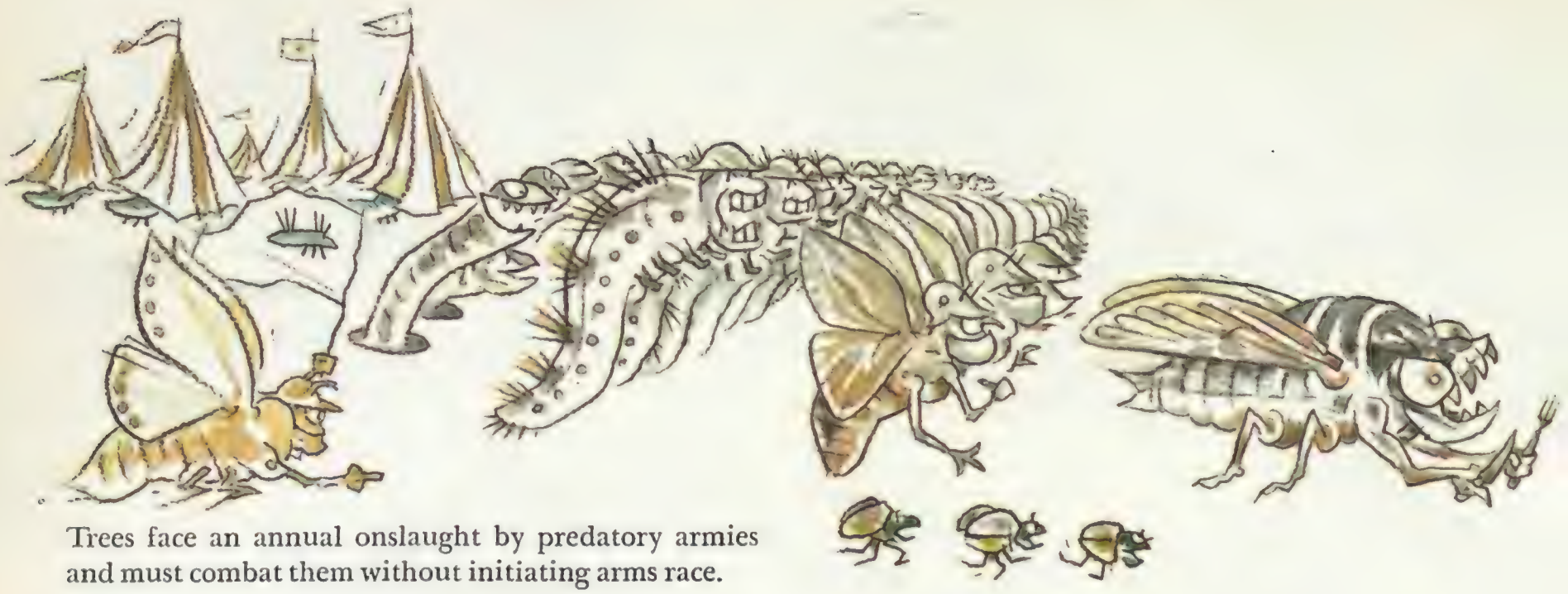
chamber. Then, rather than subject the trees in the first chamber to insect attack, they mechanically ripped the leaves of 15 of them, leaving the other 15 untouched. After 52 hours had passed, they analyzed the leaves, looking for specific noxious compounds that insects disdain, called phenolics. They found that the leaves from both the ripped and the unripped trees in the first chamber showed significant increases of phenolics. Leaves from unharmed poplars in the faraway chamber showed no such change.

"I was home when Ian got the first results," says Schultz. "He said, 'Hey, poplars talk!' " Baldwin and Schultz published their findings in the journal *Science*, and immediately received a blitz of attention from the *National Enquirer* to the national evening news, from schoolchildren in Nigeria to garden clubs in Pasadena. The odd but pleasing possibility that trees talk delighted the public imagination.

Now a professor at Pennsylvania State University in State College, Pennsylvania, Schultz often dresses in army fatigues and punk-dance boots that hint at his passion for playing rock music. He continues to investigate tree communication but now he emphasizes its influence on insect outbreaks. Like epidemics, insect outbreaks trigger panic, especially among paper and lumber companies who hate to see their profits literally eaten up. A few cyclical insects, like the 17-year cicada, appear punctually and at regular intervals; but many important pests, like the spruce budworm, forest tent caterpillar or the gypsy moth, arrive at irregular intervals that defy prediction. The blame has been laid on everything from climate changes to bird populations, but scientists still fail to predict exactly what triggers the outbreaks. Although Schultz doubts that

SOME CIRCLES SHALL REMAIN EXCLUSIVE.

The ultimate recognition from your banker. A gold MasterCard card.



Trees face an annual onslaught by predatory armies and must combat them without initiating arms race.

there is a single trip-wire event, he believes that the plant is the pivot, the point on which all other variables turn. "What roles does the tree play in reducing an outbreak?" That is the question that Schultz wants to answer.

Outbreaks occur frequently in monocultures where communication may be most likely to occur. "In the case of the gypsy moth caterpillar, the caterpillar drops on his silk if he does not like a tree," Schultz says. "It might be advantageous for a tree to appear less appetizing when organisms are swinging from tree to tree."

But Schultz also suggests that communication between two trees may not be as important as communication between leaves on the same tree. He sees a tree as a mosaic of leaves, each of which adopts a different defense strategy. "The tree keeps the insect guessing and thus at a disadvantage," says Schultz. "It is a shell game." Like the pebble concealed under one of three shells, the tasty leaves are hidden among the poisonous ones, forcing the insect to sample and scavenge for its meal. The tree and the insect have evolved a workable peace in which the tree slows the evolution of the insect (which would change the terms of the conflict) by satisfying its enemy some of the time, and yet the tree avoids destruction by destroying its enemy some of the time, too. Although the evidence is slim, Schultz argues that intratree communication would allow the leaves to coordinate a defense strategy when faced with an insect onslaught.

Schultz will be entertaining these ideas as he conducts a three-year study on the changing defense patterns of red oak trees at a field site near the university. By hand, he and his crew are defoliating 70 percent of the leaf area on one set of trees, 30 percent on another set and leaving one set untampered. Then they will place gypsy moth caterpillars on the leaves, monitor how well they grow and analyze how the compounds in the leaves change over time. At the end of the summer, they will collect the larvae and place them back on the same trees in the spring. They will repeat the experiments for two more years to see if and how defensive changes induced by caterpillars persist.

It would be to the tree's advantage to learn from the past. Rhoades speculates that trees may be able to acquire immunity from insect enemies, just as we acquire immunity from the chicken pox after we develop it once as children. In order to develop immunity, the tree would have to first recognize the insect as a dangerous one, itself a quirky and poorly understood process. If trees do acquire immunity, it probably wears off after a few years and, in fact, its loss may be involved in triggering cyclical pest outbreaks.

The research on tree communication may pay off with better pest management, with an approach that succeeds where the wholesale spraying of pesticides has largely failed. If evergreens do develop an immunity to the spruce budworm, then it might be counterproductive to kill the insect off immediately. It might be better to wait and *not* spray at the first sign of infestation but let the plant marshal its own defenses. Another possibility is equally intriguing. If tree communication has evolved, plant breeders might be able to select for new species that "speak" in particularly loud and robust tones. Forget the whispering pines. Bring out the hollering poplars.

Still, a conflict arises over how tree communication might have evolved. In the conventional view, there appears to be no evolutionary reason, no selective advantage, for one tree to send messages to another. In simplified terms, if two trees are genetically different—that is, if they are not clones—then they are in competition for resources and the attacked tree does not

Go ahead.
Spend the extra few dollars.
It's Christmas, isn't it?

To send a gift, dial 1-800-243-3787

12 YEARS OLD WORLDWIDE • BLENDED SCOTCH WHISKY • 86 PROOF • © 1984 GENERAL WINE & SPIRITS CO., NEW YORK, N.Y.

in any way gain or benefit from communication. On the other hand, there is an evolutionary advantage for one tree to receive messages from its ailing neighbors. It is unclear at this point whether tree communication is active (that is, initiated by the attacked tree) or passive (that is, perceived by the neighboring tree). "I would like to think that it is active, that there is an organized behavior of plants," says Rhoades. "But that is really a fond hope."

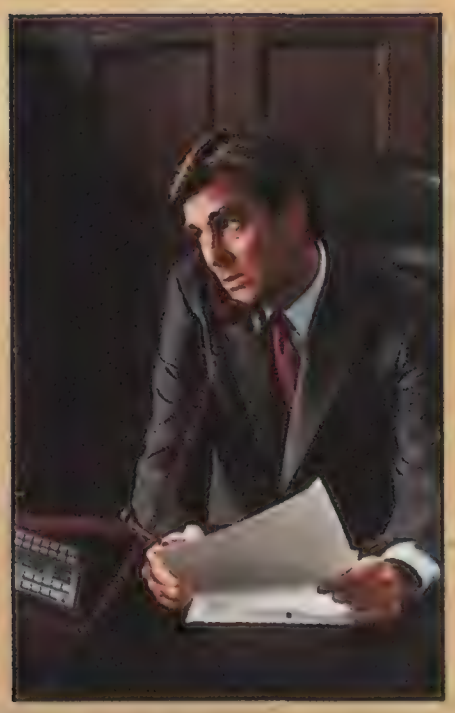
Whether tree communication is active or passive, intentional or incidental, its existence bolsters the idea that chemical-messenger molecules evolved in all organisms as a means of giving flexibility to their responses to their environment. Chemical-messenger molecules occur throughout nature, from compounds like RNA, which function inside the cell, to the elaborate pheromones released by the gypsy moth to find a mate. All of these molecules act as symbols, allowing the organism to represent its relationship to the environment in a flexible way. Through these symbols, organisms coordinate and synchronize their actions, gaining an edge in the race to survive.

Although the hypothesis that trees communicate remains unproved, it is attractive enough to draw other researchers. Thomas Kimmerer at the University of Kentucky is investigating the phenomenon in cottonwoods. Last year, Dave Perry and Gary Pitman at Oregon State University began investigating the possibility that it occurs between Douglas firs. They had been monitoring the chemical defenses used by Douglas firs against the Western spruce budworm when an epidemic broke out near their test site. Suddenly, the chemical defense system of their test trees changed in an unexpected way. Had a warning message been released? "I like the idea of communication between trees," says Perry, who hopes to have an answer within the year.

In the meantime, scientists will never contemplate trees in quite the same way. "There is a large unseen behavioral repertoire of plants that has not yet been explored because we haven't known where to look. It is the unseen that fascinates me," says Ian Baldwin. And it is the unseen that has shaken our knowledge of trees to the very roots.

A tree must calmly stand its ground for decades, even for centuries, as pests nibble, chew, munch and chomp.

AT&T GIVES YOU THE OUTLETS YOU NEED TO COPE IN TODAY'S WORLD.



There's one word to describe today's world.

Hectic.

Information coming in. Information going out. Voice, video and data.

It can all get pretty pressure-packed.

Which is where AT&T comes in.

We'll help you cope with this new world of information management.

Something we've been doing for 108 years with the best telephone system in the world.

And what we did for telephone communications, we're now doing for all kinds of information.

Making it easily available and easy to use.

PHONES THAT SAVE EVERYTHING FROM TIME TO LIVES.

We've designed our phones to make your life a lot easier. And a little safer, too.

Phones that will dial and redial busy and unanswered numbers, so there's no aggravation. And phones that will answer the phone for you.

Cordless phones that'll go the distance with clearer and more secure frequencies.

Cellular mobile car phones that go farther, so you're never out of touch even when you're driving.

A phone that automatically calls not one, but two preprogrammed numbers in case of fire or other emergencies. All phones you can count on as well as call on. Whether you buy them or lease them.

OUR INFORMATION SYSTEMS MAKE YOUR WORK LESS WORK.

We designed our information systems for business by putting ourselves in your place. Systems that grow when you grow, change when you change. Complete with digital technology that'll integrate communications with everything from temperature control, to electronic mail, to security. Or data communications terminals, modems, teleconferencing equipment and more.

For customers who only want phones in their offices, we are constantly improving Centrex services to satisfy many of these same sophisticated voice and data needs.

And we offer a quality that's getting harder and harder to find in today's world.

Reliability.

Not only do we have customized systems that monitor themselves, we also have a service that keeps tabs on them 24 hours a day. Plus the industry's largest and most experienced service force at your beck and call.

So your lines stay up.

Not to mention your productivity.

A GLOBAL NETWORK THAT OFFERS A WORLD OF DEPENDABILITY.

Whether it's a home phone, information

system, or computer, AT&T lets you reach out and touch any place in the world.

With an incredible computerized network that takes you from Tokyo to Kokomo, from Cairo, Illinois, to Cairo, Egypt. And every-

where in between.

So you can send and receive voice, video, or data across the country or around the world. Or meet face to face through teleconferencing, so you don't have to worry about time and travel costs. Or even have unlimited access and budget control through our 800 numbers and WATS lines.

An intelligent network that's not only the most reliable in the world, but the most flexible.

As well as personal.

With real human beings—44,000 operators—who are always there to help if you ever have a problem.

AT&T TURNS SCIENCE INTO SOMETHING YOU CAN COPE WITH.

Through years of inventing everything from the telephone to the transistor, we've always kept one thing in mind.

The people who actually use what we invent.

So everything we come up with isn't just sophisticated technology.

It's user-friendly technology.

And as reliable as it is advanced.

Our switching systems are second to none, with built-in computer intelligence.

We can handle the telecommunications needs of any size city, town, or village.

In fact, our switches are used by countries and companies all over the world.

Our lightwave technology is now bringing the world closer, faster—by moving millions of bits of video, voice, or data thousands of miles in a split second.

All on a hair-thin strand of glass fiber. Across the country or under the sea.

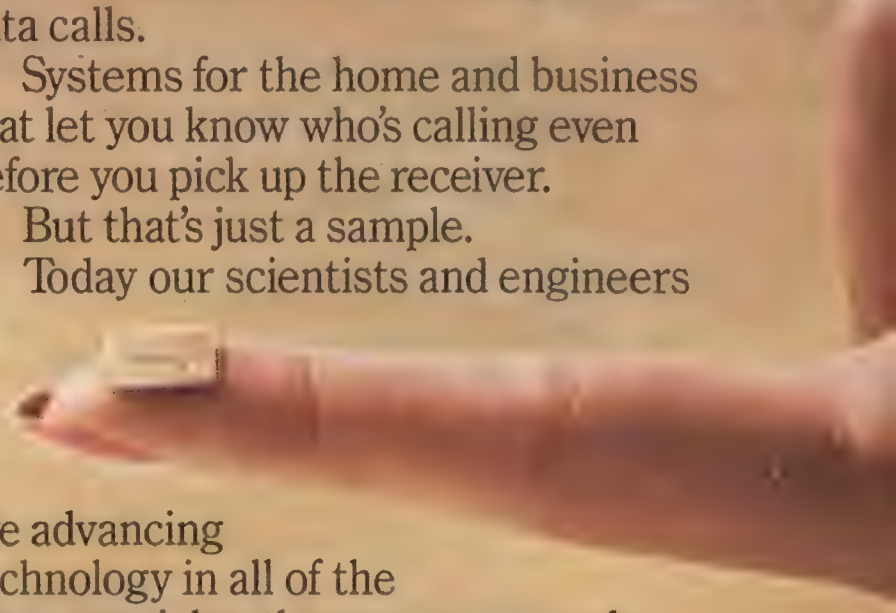
AT&T Bell Laboratories is developing new advanced systems of even higher levels of communication and information control.

Systems that utilize conventional phone lines for data access—lowering the cost of data calls.

Systems for the home and business that let you know who's calling even before you pick up the receiver.

But that's just a sample.

Today our scientists and engineers



are advancing technology in all of the areas crucial to the movement and management of information. Creating and improving everything from more powerful computer chips to software applications.

Which all comes down to a future where the Age of Information will be available to more people in more places than ever before.

THE MOST EXTENSIVE COMPUTER ENTRY EVER MADE.

Legally, we couldn't sell our computers before. But now we can.

In fact, we've already introduced the broadest initial product line in the history of information processing.

Computers ranging in size from desk-top super micros, to super minis.

Along with our new personal computer that can handle everything from financial analysis, forecasting, and budgeting to word processing and inventory.

User-friendly computers that'll take the complexity out of information movement and management.

Computers capable of working with other equipment you may already have.

To give you the most flexible information systems in the world.

And that's not all. Our UNIX™ System V operating system is already becoming the industry standard for multi-user, multi-tasking machines.

Linked with AT&T's communications system, you'll be in touch with more information faster than ever before.

We think you'll be impressed with our full line of computers.

Even some of the toughest people in the world to impress are impressed.

The Japanese.

Japan's Nippon Telephone and Telegraph Public Corporation has bought 60 of our 3B20S super minicomputers.

So you're going to be hearing more and more about AT&T computers.

CALL US AND WE'LL HELP YOU WITH MORE INFORMATION.

Even after reading these pages, you've only skimmed our surface.

So you just might have a few questions.

No problem, just call us at 1 800 247-1212.

We'll try to give you the information you need. Or put you in touch with the right people to help you.

We think you'll see that we're not just here to sell you the Information Age.

We're here to help you cope with it.

AT&T

© AT&T 1984

Janis Mattox designs a path to move music around concert hall, controlling sound from corner speakers.

Possible pathway, displayed on the computer screen (right), appears superimposed, enlarged in foreground.

By Alan Rich

A composer whose computer music has a magical twist

A new generation of artists redefines music as works like Janis Mattox's 'Shaman' mix unwordly electronics and human performers

On September 29, 1984, the world premiere of a composition called "Shaman" took place on the campus of Stanford University. The piece, running a little more than an hour, called for four live performers—drummer George Marsh, bass player Mel Graves, singer Bob Ernst and belly dancer Rachel Dutton—and a multitrack tape. That tape contained an electronic "orchestra" of sounds of incredible variety and fascination, most of them created through the complex facilities at Stanford's Center for Computer Research in Music and Acoustics (known by acronym as CCRMA, appropriately pronounced "karma"). Even on a warm football weekend, a capacity-and-then-some crowd showed up. Among the ensuing reviews was one which detected in the music "a form that could be predominant in 21st-century creativity"; another writer found it "a bunch of sounds in search of justification for their existence." That's how it goes nowadays with trailblazing gestures in the arts.

Some of the sounds were those of human voices, including a four-minute prelude intoned by Bob Weir, charter member of the long-lived rock group known as

Photographs by Ted Streshinsky

Musical computer performs in 'Shaman'

Janis Mattox tries her hands at drums in a polyrhythm class given by "Shaman" percussionist George Marsh.

the Grateful Dead. But these voices had been "processed" into outsize, spooky electronic metamorphoses that bore little resemblance to what the human throat can produce anywhere on this planet. The composer, Janis Mattox, had been working on "Shaman" for three years at CCRMA, most of the time seated at a computer terminal on whose screen she could call up sounds and sound patterns that she had previously fed into the monster's memory banks, and manipulate and ultimately weave these sounds into the fabric of a continuous piece of music. In doing so, Jan Mattox has become one of a small band of musical creators engaged these days in the exploration of a brave new musical world in which composer and computer join—er, I almost said "join hands"—in an original, powerful and occasionally thrilling musical language.

I went to my first all-computer-music concert in June 1981. We lay on blankets on a scraggly lawn outside what was then the CCRMA headquarters, on a hillside somewhere between the main Stanford campus and the ocean. Four elephant-high loudspeakers ringed the area; a table in the middle held an array of tape recorders, mixers and mysterious boxes full of knobs and meters. The music poured over us, moving among the four speakers but seeming to fill the sky. Once in a while we'd pick out something like a rhythm, except that it was in our own imagining rather than the music itself. One piece, I could swear, was in exact rhythmic synchronization to the wisps of fog that moved across the star-studded sky.

After the crowd had left, Janis Mattox turned the equipment back on to play a few bits and pieces of a work she had in mind to compose. I had known her for a while; her friend Loren Rush, a well-known composer and researcher whom I'd known for years, one of the founders of CCRMA, had introduced us and played me some of her earlier music. I had particularly flipped over a piece called "Dragon's View," a steamy, cloud-covered setting of a passage from John Gardner's *Grendel*. She was fascinated then, as she still is, with explorations into mythological subjects; the otherworldliness of Gardner's snooty dragon, a character first found in a passage from *Beowulf*, lends itself wonderfully to the similarly disembodied sounds at the command of today's computer composers. In "Dragon's View" the dragon's words come out from the loudspeakers as the epitome of resonant, scornful self-importance, all created by electronically enhancing the ordinarily soft-spoken voice of a young actor.

That night, out on the CCRMA lawn, Jan played us some of her latest "files"—played them, that is, by typing some commands to the big Foonly F4 processor inside the building, which then told CCRMA's digital synthesizer, familiarly known as the "Samson Box" after its inventor, Peter Samson, to send something along to those big outdoor speakers.

In everyday computerese, a "file" is a finite body of information—an article or chapter created on a word processor, a piece of data of any shape. Jan Mattox's musical files were the musical equivalent: a rhythmic idea, a melody or a sonority, an "inspiration," if you want to get corny, that the composer feeds into the computer's memory and can summon up as needed. What Jan played that night were some drum sounds

CCRMA composer Loren Rush, with controls in one hand, drumsticks in other, works on new compact disk.

Singer Bob Weir of the Grateful Dead hears his voice digitally distorted during invocation from "Shaman."

and rhythms that she had recently invented, that she wanted to store and use later on. By the time "Shaman" had been fully assembled, there would have been thousands of these files, derived from any number of sources: a sound created right at the computer, or something from an outside source, like a rock-singer's voice processed beyond recognition.

And even though the end result might be the kind of sound no case-hardened symphonygoer might readily accept as "music," there is a clear analogy between the musical ideas that a composer in earlier times might keep in his mind—the elements that go into what we recognize as a composer's style—and the ideas that today's composer might entrust to today's surrogate memory in the innards of a huge main-frame computer. Remember, too, that the strangeness of electronic sounds—relative, that is, to the sounds of a symphony orchestra—can be taken not so much as a break with tradition as part of an ongoing expansion in the musical-sound spectrum. The 18th century had its newfangled "glass harmonica," an instrument that gave off the tuned, bell-like sounds that you get by rubbing the rim of a crystal goblet. Mozart composed good music for its strange, unfamiliar sonorities. Mozart also surprised conservative audiences by using in his symphonies a clarinet, a lowly instrument previously relegated to outdoor band music. More recently, in 1913 to be exact, Igor Stravinsky's unorthodox use of orthodox symphonic instruments in his *Rite of Spring* also sent many new-sound-fearing critics up the wall. It was ever thus.

But the notion of music created by computers, or even by human composers in cahoots with computers, is more frightening still. Entertain, if you will, the notion of some future HAL 9000, perhaps even sooner than the year 2001, talking back to some creative genius: "No, no, Johann Sebastian, you want a B-flat there, not an A." John Chowning, another of CCRMA's cofounders and its present director, has an answer: "When people speak of the dehumanization of music, I speak of the humanization of computers."

Chowning was a graduate student in music in 1964 when the Stanford Artificial Intelligence Laboratory (SAIL) had become one of the nation's top experimental settings for computer research. In that year a Bell Laboratories researcher named Max Mathews published a landmark article on computer generation of sound that demonstrated ways in which musical sounds could be created, stored, reproduced and manipulated through computer technology—through, specifically, the breaking down of a sonority into a digital formula. That article heralded, among other things, the digital process in audio recording that has

Alan Rich, music critic of Newsweek, *wrote about education at CalArts in* SMITHSONIAN, January 1983.

Musical computer performs in 'Shaman'

A 60-foot computer score, held by CCRMA composer Michael McNabb (right) and colleagues, has no notes.

now given us the remarkable compact disk; but it also carried a world of challenge to the composers of the time. Using some of SAIL's down time to pursue the horizons revealed in the Mathews article, Chowning, joined by Loren Rush, James A. (Andy) Moorer, John Grey and Leland Smith, evolved a fantastic and wide-ranging series of experiments, all resulting in the creation of sounds that a freethinking mind might allow as a kind of music, all also resulting in the establishment of today's close relationship between seemingly discordant worlds: arts and engineering.

By 1975, with grants from the National Endowment for the Arts and the National Science Foundation, Stanford had formalized their researches by establishing CCRMA as an autonomous center within the music department. The CCRMA installation soon became the prototype for other research centers worldwide, most notably Pierre Boulez's IRCAM (Institute for Research and Coordination of Acoustics and Music), which inaugurated its subterranean quarters in Paris in January 1977 (SMITHSONIAN, August 1977). Other large American computer centers are currently in operation at MIT and the University of California, San Diego.

Music that will move around in space

In the intervening years, the computer world's musician-scientists have extended their researches to fields other than composition. Loren Rush talks enthusiastically about computer-aided advances in acoustics, that so far inexact "science" by which one concert hall will resound like a vintage Stradivarius while another will make all its music sound gray. By a discreet use of state-of-the-art loudspeakers, controlled by a computer so as to spread an even, naturalistic sound into every corner no matter how far from the stage, Rush predicts, a future concert hall can be made of the most inexpensive materials and still be endowed with the most satisfactory, natural-sounding acoustics. The acoustical properties will be flexible; with a good engineer at the keyboard, the hall's sound can be adjusted—while a concert is going on—from the sound demands of one piece to the next.

Through computers, a composer can also make his music seem to move in space—early works, including Rush's "A Little Traveling Music" and Chowning's "Turenas" already explore this possibility. (By doing so, of course, the computer merely brings itself up to the late 16th century, when Giovanni and Andrea Gabrieli wrote their famous "echo" pieces that give the illusion of moving around in the vast space of St. Mark's Basilica in Venice.) In another part of CCRMA, Leland Smith has addressed himself to the problems of music printing, while Bernard Mont-Rey-

BLENDED SCOTCH WHISKY • 86.8 PROOF • © 1984 SCHENLEY IMPORTS CO., N.Y., N.Y.

naud, working with software that will be able to analyze a piece from the pattern of its sound waves, can then use Smith's circuitry to print it out.

It should be clear by now that in assimilating the fascinating musical worlds lurking within today's computers, a vast complex of cherished definitions has to be thrown out the window. Take the notion, for example, of musical instruments. Once a musical instrument was a piece of hardware—a piccolo, a piano, a pipe organ—a fixed *thing* that one could play tunes on. Now the "instrument" is the sounds created by the composer directly in the computer—the sounds, and also the music. No longer a fixed machine, the instrument can itself be changed: a superpiccolo, say, that imitates the sonority of the live instrument but can play higher, lower or faster than the real thing. There's a record out with some of CCRMA's music, a compact disk from Elektra called "The Digital Domain," in which you can hear something along this line. An excerpt from Michael McNabb's "Love in the Asylum" (p.100) starts with what sounds like a wavering line for flutes; then we think we're hearing that merge into a solo clarinet, with some kind of small bells off in the distance, fading away toward inaudibility.

Playing a plucked Golden Gate Bridge

Or take another piece, David Jaffe's "Silicon Valley Breakdown." Here, the young composer has imagined a huge orchestra of plucked instruments, superguitars and harpsichords of every imaginable size: tiny sounds barely audible, huge tonal blobs that sound, in Jaffe's words, like "a plucked Golden Gate Bridge," the music swooping here and there, dropping to Earth for a moment of hilarious honky-tonk almost-harpsichord, then taking off again on a star trail. The disk also includes three excerpts from Jan Mattox's "Shaman," which was still a work in progress when the record was produced in 1983.

The files Jan Mattox demonstrated that night in 1981 were mostly synthesized percussion sounds in complex rhythmic patterns. She had been studying polyrhythms—the technique of combining different rhythmic patterns simultaneously, something you move on to after you've learned to pat your tummy and rub your head at the same time you're break dancing—with a well-known Bay Area jazz drummer and composer named George Marsh. Meanwhile, she had been reading about shamans, magically endowed individuals in certain societies who will themselves into altered states, often through an ecstatic outburst of drumming, so that they can contact the spirit world. Bit by bit, a scenario took shape: George Marsh as the shaman, drumming himself into a trance through which he passes toward another world, there met by a

In CCRMA studio, percussionist Marsh and dancer Dutton work on parts in early rehearsal of "Shaman."

birdlike creature that gives him the power to enter that world and confront an ancient goddess who will reveal to him the secrets of the Universe. Ancestral voices tell of other dangers. Then the shaman will make the tortuous passage back to reality, defying and overcoming the spirit of death, to pass on his secrets.

"Once I had the outline," says Jan, "the piece itself became a real cooperative effort: George on drums and Rachel Dutton [an adept exponent not only of Middle Eastern belly dancing but of strenuous solo dancing from other cultures as well] to work with me on the choreography and to make her own fabulous costume for her dance of the ancient goddess. Then one day George Marsh brought his friend and sometime collaborator, the San Francisco bassist and composer Mel Graves, down to Stanford to hear the progress on 'Shaman.' When I heard him play I knew I wanted him in the third part, where the shaman comes back to Earth. But I had already composed a third part. No matter; I wanted Mel. And so I simply threw out nearly a year's worth of files and began again."

Then along came Bob Weir. First, you have to know

In the foreground, Janis Mattox uses a computer, mixes sound and lights for her as yet unfinished work.

that many of the progressive rock and jazz musicians have been aware of the possibilities of drawing upon computer techniques to expand their own art for several years. At the latest of CCRMA's annual outdoor concerts, last summer, the great jazz saxophonist Stan Getz played pieces by Dexter Morrill in which the live and computer-created sounds formed a lively, often haunting dialogue.

"Several of the Grateful Dead have been coming to our concerts for years," Jan Mattox remembers, "and one time I told Bob Weir about my piece and asked if he would like to participate in it. So he came to the lab and I simply asked him to make the kind of sound he thought a shaman might make. So he did, and then I fed that wail of his through a digital reverberator to add resonance." The result of this processing is a four-minute harrowing, haunting invocation that wonderfully sets the stage for the entire work. Another well-known Bay Area singer, Bob Ernst, appears as the spirit of death in the last section. He also has his voice electronically processed to project this sense of fierce struggle as the shaman works his way out of the spirit world. "With Mel," Jan continues, "I fed the sound of his playing through an 'envelope follower.' That's a set of circuits that allows the live sound, or sound on tape, to trigger a further response from the computer, so you can end up with something with many layers based on that one original melodic line, and you get sound of fabulous depth."

Why, one might well ask, have composers done this to themselves and to the grand musical tradition—cut themselves off from the world of ink and paper and the kiss of the Muses, and isolated themselves before a video screen in an airless laboratory?

One obvious reason is pure necessity. Symphony orchestra managements nowadays are reluctant to take on difficult new works, especially by young composers not yet household names. Working with the computer gives the composer his only sure access to the grandiose vocabulary of the large musical organization.

But it does much more. I watched as Jan Mattox, seated at her terminal in CCRMA's old building, created and then tried out some new venture along the sonic rainbow. I asked her if there wasn't resentment, out in the real world, that computers might take all the juice out of composition and make creation so easy that artistic standards might topple. "It isn't that computers make it easier to compose. It can be just the opposite, in fact. I remember sitting here for a whole day, trying to adjust just a few milliseconds of a tone that wasn't sounding right.

"But the great thing about computers is that it allows us to conceptualize every aspect of music," she continued. "We invent our own sounds. We can put those sounds into space, move them around, add rever-

At dress rehearsal, bassist Mel Graves watches belly dance by Dutton, who designed all of the costumes.

Musical computer performs in 'Shaman'

beration, make a singer in this small room sound as if he's singing in a huge cathedral." I watched as Ján called up a graphic description of a wave form on the screen: a bell-like sound, one of the easiest noises a computer can be programmed to produce. Then she typed in a few changes; *ping* became *pong* became *clunk* as she altered the envelope that gives every musical sonority its own personality, that enables us to tell a high C on a violin, say, from high C on a flute.

In the first section of "Shaman" there are moments when George Marsh's live playing is heard not only by the audience out front, but also by a microphone leading to a computer. The computer, in turn, gives out an electronically processed, altered version of what it has heard, so that the hall becomes inundated in the sound both of Marsh and of his electronic counterpart, a breathtaking, virtuosic give-and-take. Later in the piece the same kind of interaction takes place between Mel Graves' live double bass and the computer, filling the room with the overpowering sense of inner struggle that the music portrays.

This interplay between the live musician and the computer goes a long way toward overcoming what was once a strong objection—among composers and listeners alike—to what seemed like an insuperable flaw. Music electronically produced, the argument ran, cannot have that randomness, that sense of ever-so-slight wandering from the straight pathway that makes the human musician human. But now that the live musician and the computer are joining forces in live performance, as George Marsh with the Stanford circuitry, that objection has faded. Furthermore, the computers can themselves be programmed to simulate randomness: an interactive network of "deviations" that can give a single tone the same sense of slight waver that it might have under, say, a violinist's bow.

In the long run, it won't be the sounds of computer music that determine the viability of this new complex of artistic languages, but what is said in them. The fight that Mozart fought in his time, and Stravinsky later on—the battle to gain acceptance for new sounds—still goes on. Computer technology makes it possible for a composer, if he so desires, to create an amazingly lifelike reproduction of a Mozartian symphony orchestra. But it also tells the composer that the whole realm of sound that our grandparents took as "normal"—symphony orchestras, string quartets, operatic tenors and the like—is only the base of the mountain. Going on from there—taking the sounds from a computer, however strange, and forming them, as Mozart did, into a convincing, logical artistic structure—that is the test of the worth of music that survives the centuries.

The chances are that most people have already heard more computer-based or computer-assisted music than they realize: in the latest movie in the Indiana Jones series, for example, on equipment designed for Lucasfilm by CCRMA cofounder Andy Moorer, and in the little tunes beeped in your ear whenever you use a push-button telephone. Chances are that almost all the music we hear these days—except perhaps for classical music concerts and operas—has somewhere along the way been subjected to computerized alteration and/or enhancement.

The next step, in fact, or, let's say, the step-after-next for computer music may very well take place in the home or the private studio. As small computers and processors continue to become more sophisticated and more affordable, Loren Rush predicts, it may very well happen that big computer centers like CCRMA and IRCAM will take on a research or custodial function. "There is already so much digital-processing use in music, more than most people realize," says Rush, "that pretty soon, as digital becomes the principal medium, the idea of computer music as a separate field will disappear. Then there'll just be music, and the composers will go back to doing it at home, just the way they used to do, but using different equipment from what Bach and Beethoven had."

Along those lines, it's probably appropriate that CCRMA has achieved a certain social status, moving down off its lovable but remote hilltop to a grand, solid, middle-aged campus building. That building was formerly the home of Stanford's more traditional music department, which has now moved into new digs close by. Somewhere in that shifting of real estate there's a significant message.

Costumed as shaman, Marsh drums as computer adds processed percussion, and lights dance off cymbals.

The boys try a new place in their Peugeot

They have driven almost two hours to get to this place, a lake with an old Indian name that means "Fish jump out."

It was still dark when the man woke the boy and they both tiptoed around the house, the floorboards cold under their feet, getting ready. Getting ready consisted of climbing into some clothes and taking the sandwiches out of the refrigerator. The man did not make the boy wash his face or brush his teeth, which made the day seem even more special.

They do not bring the boy's sister this time. She is only four and makes a lot of noise and thinks fish stink. It is just the two of them, the big one and the little one. "The boys," as the mother calls them.

"Do you think it's true?" the boy asks.

"Is what true?"

"Fish jump out."

The man nods. "You'll see."

Nothing says a wagon has to be primitive. Seats of soft, supple leather are available at extra cost in the Peugeot 505 S.

The station wagon they have driven up here in is a Peugeot, the 505 S.

It is a big wagon. With its rear seat up, it has more cargo space than *any* other wagon available in America. The payload is over half a ton.

It is a lavishly equipped wagon. Air conditioning is standard equipment. Central locking. Cruise control. Power steering, brakes, windows, antenna. A digital radio/cassette system with six speakers. Heated front seats. Even side mirrors that de-ice themselves. All standard equipment. The Peugeot is very much a wagon for comfort of body.

It is also a wagon for comfort of

mind. The Peugeot is one big wagon that is designed *not* to wag its tail clumsily from side to side on the highway. It handles *exactly* like a sedan.

You can have a Peugeot wagon with vinyl seats, velour seats, or leather seats. A fuel-injected gasoline engine or a turbocharged-diesel engine. Prices range from $12,440 to $17,965.* (Prices of Peugeot sedans range from $11,900 to $18,330.)

Please call 1-800-447-2882 toll free in the continental U.S. for a facts-filled brochure and the name of your nearest Peugeot dealer.

* Based on P.O.E. manufacturer's suggested retail prices. Actual prices may vary by dealer. Destination charges, taxes, dealer preparation, if any, and license fees are extra. Cargo-carrying capacity based on EPA measurements.

PEUGEOT

© 1984, Peugeot Motors of America, Inc.

By Peter J. Ognibene

At the first ski spa, stars outshone the sun and snow

Harriman built it, Hannagan promoted it, Hollywood adopted it—which is how Sun Valley, Idaho, became the 'in' place to ski

At the age of 93, William Averell Harriman can look back on a lifetime of public service filled with extraordinary accomplishments. The son of a railroad magnate, he went to Great Britain as Franklin Delano Roosevelt's special envoy for Lend Lease, became our wartime ambassador to the Soviet Union, served as Harry S. Truman's Secretary of Commerce and was elected Governor of New York. But before he did all of that—and a good deal more to boot—he built America's first great ski resort, Sun Valley, amid the isolated splendor of south central Idaho.

A ski lodge might not seem worth including on such a distinguished list—unless you happen to be a skier. But Averell Harriman did more than just create a posh vacation paradise at Sun Valley. He developed the granddaddy of all American ski resorts there, a pioneering model upon which hundreds of others would eventually be based. In accomplishing that innovative feat, he played a central role in skiing's remarkable transformation from an obscure sport a few decades ago into a leading national pastime today.

This winter, an estimated 20 million Americans will go skiing. In the process, they will spend several billion dollars on everything from lift tickets and lodging to goggles and gloves. Back in the 1930s, however, skiers

Skiing was an obscure sport here in 1936 when first Sun Valley publicity picture was taken—in New York.

Today skiing is a big industry, keeping instructors like Sun Valley's Gretchen Wick busy and fit.

America's first great ski resort

Averell Harriman's friend Count Felix Schaffgotsch found an ideal ski-resort location near Ketchum, Idaho.

numbered in the thousands and there was hardly anything for them to spend money on—no lifts, no lodges, no fancy ski shops. In those days, a person might have to slog uphill through deep snow for more than an hour to enjoy one brief schuss down a narrow logging trail. Not until 1934, when a jacked-up Model T Ford was used to power a rope tow in Vermont, was there a better way to get up a mountain.

Rope tows attracted thousands of newcomers to the sport, but what really made skiing popular was the proliferation of modern ski resorts in the 1950s and '60s. By that time, Averell Harriman and his functionaries had already worked out the formula for success. Find mountains that hold the eye as tenaciously as they hold the snow. Provide luxurious accommodations, professional ski instruction and chair lifts that whisk vacationers to a variety of runs. Arrange to have a glittering array of movie stars, sports heroes and other celebrities photographed on the slopes and in the night spots. Then promote the dickens out of the place.

That's exactly what Harriman did at Sun Valley, and within a few years of its opening in 1936 the resort had radically altered the public's perception of what skiing was all about. It replaced the skier's forbidding old daredevil image with a glamorous gallery of Hollywood stars—including Gary Cooper, Claudette Colbert, Ray Milland and Ann Sothern—gliding gracefully down Idaho's mountains. It made skiing absolutely the "in" thing to do. Today Sun Valley may be a bit outgunned by such enormous ski developments as Vail and Aspen in Colorado, and Mammoth Mountain in California. But it retains in abundance one quality that few of its competitors can match: character.

Before Harriman willed Sun Valley into existence, Ketchum, Idaho, was an old mining town in the Wood River Valley that had long since gone from boom to bust. It consisted of 270 residents, a dusty main street

Motif of the inn and the restaurant, the Ram, was Tyrolean, as were the outfits of the first ski instructors.

Harriman (left), "fell in love" with the Count's site, viewed lodge construction with Steve Hannagan, 1936.

Like the Count, who hand-picked them, men were Austrian. Boss Hans Hauser is in front, third from left.

and a few blocks of stores and houses. The rugged hill country around it was used mainly for grazing sheep, and in the winter heavy snowfalls often sealed off the entire area from the outside world.

Though skis were largely unknown in the valley, almost everyone had a pair of "snowshoes"—homemade boards, nine to 14 feet long, with foot straps nailed to the center. Miners and ranchers got about on them in deep snow by propelling themselves with a single pole that, when dragged between the legs, served as a brake. But skiing for *pleasure*? That was an alien notion.

It was not an alien notion to Averell Harriman, a tall athletic man who had never been to Ketchum but who had visited many of the great resorts of Europe. Convinced that the American West could one day rival the Alps as a skiing Mecca, he decided to build a resort that would lead the way. It would also, not incidentally, generate new passenger business for the Union Pacific Railroad, of which he was chairman of the board. Longtime railroad men scoffed at the idea, but Harriman ignored their advice and turned to an Austrian acquaintance and fellow sportsman, Count Felix Schaffgotsch, to find the perfect location.

Eager at the start of his quest in November 1935, the Count soon became disillusioned. Jackson Hole impressed him, but the state of Wyoming refused to keep Teton Pass open. He didn't think much of the scenery in eastern Idaho, and an Oregon downpour dampened any enthusiasm he might have had for Mt. Hood. Colorado was ruled out because the parts he visited were too windy and too cold, and the most promising areas in Utah were too far from the Union Pacific's tracks. Having all but given up the search, Schaffgotsch was ensconced at the Brown Palace Hotel in Denver when a Union Pacific employee wired him about the railroad's snowbound spur to Ketchum. Dutifully, he checked out of his comfortable suite and headed for Idaho.

The Count came, saw and was conquered

Greeted in Ketchum by sunny, windless skies, Schaffgotsch glanced at the terrain and was pleased. To the west stood Bald Mountain, unmistakably an Olympic-class peak. To the east lay a valley surrounded by treeless hills, ideal for novice skiers. To the north were the Boulder Mountains with the Pioneer Mountains to the east—as fine a windbreak as nature might create. Schaffgotsch couldn't believe what he had found: it was as if a chunk of his native Alps had emigrated to America. Schaffgotsch wrote Harriman that the area had "more delightful features for a winter sports center than any other place I have seen in the United States, Switzerland, or Austria." In short order, Harriman was heading west in his private railroad car.

John Wayne, not a skier, grabbed a rope tow for a publicity shot.

Edgar Bergen got a cold shoulder from icy Charlie McCarthy in lodge.

Groucho Marx sized up skis shortly after his marriage at Sun Valley.

"I can remember vividly getting off the car and putting on my skis and skiing into Sun Valley on powder snow," Harriman recalled recently. "I fell in love with the place then and there." When he returned to New York, he began making plans for his resort. Idaho's livestock industry had been hit hard by the Depression so the Union Pacific had no trouble picking up about 4,300 acres for just $10 an acre. Harriman moved quickly, hiring an architect and breaking ground for his lodge in June. But he made one of his most important decisions when he retained a shrewd promoter named Steve Hannagan.

There was nothing subtle about the Hannagan approach. It was his idea, for example, to promote Miami Beach with "news" photographs of bathing beauties. And it worked. Idaho, however, presented Hannagan with a far greater challenge, personal as well as professional. For one thing, the pudgy publicist hated sports. For another, he abhorred cold weather.

This is how Hannagan later described his first journey to Ketchum: "We went up the line in a covered handcar, and then we got into a sled, and after that we had to walk. All I had on was a light tweed suit; I was used to the sun down at Miami Beach, and it was colder than hell. So, we got out and looked around, and all I could see was just a goddam field of snow. . . . 'This is strictly ridiculous,' I said, but we walked around some more, with my shoes full of snow, and then the sun came out. It began to feel pretty good, so I opened my coat. Then I took it off. Pretty soon, I opened my vest. Then I began to sweat. You know, the temperature goes up to 97 degrees there in the sun and still the snow doesn't melt. When you think of winter sports, you usually think of the cold, don't you? Well, I always believed in a good name."

That, Hannagan insisted, is how the name "Sun Valley" was born—even though the average winter temperature there, about 17.5 degrees F, is really not much different from the temperature in many other places out West. The name proved, at any rate, to be a brilliant stroke. Having sold Miami Beach with cheesecake, Hannagan chose beefcake for Sun Valley. A handsome young man on skis, stripped to the waist, was photographed mopping the perspiration from his brow. To the public, it looked authentic. In fact, it was taken in a New York studio where Hannagan fussed and fumed for three days until he got exactly the shot that he wanted. Although the snow was as phony as the sweat (petroleum jelly), Hannagan considered the picture a masterpiece and used it extensively to promote the resort.

Once the promotional campaign and the modern style of the four-story lodge were set, one final question remained: How would skiers go *up* the mountain? Hannagan insisted that "some mechanical devices" must be installed to take people to the top of the slopes. What sort of devices was left to the Union Pacific's engineering department in pancake-flat

Peter Ognibene has skied at major resorts all over the country. His first novel, The Big Byte, *was published last summer by Ballantine.*

Omaha, where the matter came to the attention of a young engineer named James Curran. Though he was not a skier, Curran had a sudden flash of insight: if hooks and conveyor belts could transport bananas out of a ship's hold, a continuous cable with chairs could perform a similar service for skiers. Harriman liked the idea and so it came about that the world's first two chair lifts were installed at Sun Valley.

Like a luxury liner at sea, Sun Valley was designed to be a world unto itself, and from the start Harriman demanded that it have the best of everything. There was a heated swimming pool. Continental employees and dozens of little touches in the rooms—from overstuffed chairs to fresh flowers—made society types feel right at home. Heavy oak furniture was manufactured to order in Chicago. The rugs were thick, red and soft. The wife of the popular café-society pianist Eddie Duchin helped with the decorating, and the bar was named the Duchin Room in their honor. As usual, Hannagan put it best: "This is one place in which roughing it must be a luxury."

That approach plus the Harriman name did the trick. Just before the resort opened, a columnist for the *New York Herald Tribune* wrote: "The persons who're going to Sun Valley from Manhattan are those who set the styles. . . . Doubtless Idaho will soon be included on Society's annual circuit, and the woods will be full of Vanderbilts, Astors, Belmonts, Goulds and what-nots." That prediction promptly came true.

On December 21, 1936, the 220-room Sun Valley Lodge, built at a cost of $1.5 million, began receiving its first guests. Everything was ready. The opening ceremonies were carried live by radio station KSL of Salt Lake City. The tasteful dining room, with its wide staircase and copper railings, was staffed by German waiters. The menu was in French. Hans Hauser, a three-time skiing champion in his native Austria, was hired to head the ski school, which was staffed by a cadre of fellow Austrians. Only one thing was wrong: the ground was bare.

Wisely, Harriman sent telegrams to his prospective guests that read: "No snow here. If you are a good gambler, come on out and be our guest till it arrives." Almost all of them did, and Harriman's gesture was seen as magnanimous as well as daring. So, instead of a fiasco, Sun Valley's inauspicious start generated reams of favorable publicity.

In March 1937, *Life* magazine did an eight-page cover story, "East Goes West to Idaho's Sun Valley, Society's Newest Winter Playground." Alfred Eisenstaedt was the photographer. A woman riding the chair lift was on the cover; inside there were pictures of social-register swells trying to ski, doffing shirts or lounging by the heated pool. Harriman and his wife were photographed on a bench in their ski togs, eyes closed, basking in the sun. Those shots and others that appeared elsewhere created an illusion of activity and elegance that instantly put Sun Valley high on the list of the nation's most desirable winter vacation spots.

But the relentless Hannagan didn't stop there. He turned to his contacts in Hollywood and began drawing stars as well as starlets to the mountains. He en-

Judy Garland smiled over a rainbow at an artificial lake near the lodge.

Lucille Ball, who made TV show at resort, hammed it up on slopes.

Sonja Henie starred in *Sun Valley Serenade* but never visited the place.

America's first great ski resort

A reminder of resort's early days, a horse-drawn sleigh conveys visitor up snowy lane toward private cabin.

The town of Ketchum sprawls below as freestyle skier Tom Ritchie jumps for joy atop Bald Mountain.

couraged producers to use Sun Valley as a sound stage. Paramount immediately accepted and came that winter to shoot the Alpine scenes for *I Met Him in Paris*, starring Claudette Colbert, Robert Young and Melvyn Douglas. Hannagan's biggest coup came with the 1941 release of *Sun Valley Serenade*, starring Olympic ice-skating champion Sonja Henie, John Payne and Glenn Miller and his orchestra. That movie made Sun Valley famous throughout the world. Sun Valley and skiing had become synonymous.

The film stars who came to Idaho thrived on the resort's rustic opulence, and Christmas at Sun Valley became an instant Hollywood tradition. Hannagan's office exploited the celebrities to the limit, of course, churning out hundreds of photographs and feeding them to the news wires. The pictures that hang throughout Sun Valley today are a Who's Who of Hollywood in the '30s and '40s: Gary Cooper, Ingrid Bergman, Clark Gable, Jimmy Stewart, Lucille Ball, Bing Crosby, Jane Russell, John Wayne and many others.

Getting the stars to cooperate was not always easy. Dorice Taylor, who ran the publicity office for many years, was feeling glum one day because some of them had refused to be photographed. When she blurted out her problem to actor Ray Milland, he promised to take care of it. The next day, Hollywood descended on Taylor's office. Milland, it turned out, had simply reminded his fellow actors that they might have trouble proving that their trip to Sun Valley was for business purposes unless they had something to show the Internal Revenue Service—such as publicity pictures.

Grand Marnier
Liqueur
PRODUCE of FRANCE
May your winter be a wonderland.
Grand Marnier.
For gift delivery anywhere call 800-528-6148 (except where prohibited by law).
Product of France. Made with fine cognac brandy 80 proof. © 1983 Carillon Importers, Ltd., N.Y.

Harriman's original lodge is now augmented by village with mall where vacationers stroll, dine and shop.

Though Hollywood gave Sun Valley much of its sparkle, the resort also attracted more august notables such as President Truman, Gen. George C. Marshall, the Kennedy family and broadcaster Lowell Thomas. But no one became more closely identified with the area than Ernest Hemingway. That, too, was largely Hannagan's doing.

Through his contacts, Hannagan learned that the well-known writer was driving to Montana to go hunting in the fall of 1939, and he ordered his top assistant in Sun Valley to try to track him down. The man succeeded, and Hemingway, accompanied by an attractive blonde woman, checked in at the lodge a few days later. The novelist stayed in Suite 206, which he and his companion, journalist Martha Gellhorn, dubbed "Glamour House." In the mornings, he worked on his novel about the Spanish Civil War; the afternoons were spent bird hunting. Soon, a steady trickle of Hemingway photographs, datelined Sun Valley, began to find their way into newspapers. One of him in shirtsleeves sitting before a typewriter would appear on the dust jacket of his work in progress, *For Whom the Bell Tolls*. Gellhorn became the third Mrs. Hemingway in November 1940, a month after the novel was published, and *Life* celebrated the event with a spread entitled "The Hemingways in Sun Valley," with photographs by Robert Capa. Hannagan was in his glory.

Notwithstanding its glossy reputation, Sun Valley was poorly managed at first. Skiers found themselves taking unexpected tumbles because no one had thought to cut the sagebrush from the slopes. In the lodge, some of the maids behaved, well, badly. Things changed, though, when Pat Rogers took over. Having run hot-dog stands and other Union Pacific concessions in Utah's parks, Rogers might not have seemed qualified for Sun Valley. In retrospect, it's hard to imagine how anyone could have done better.

Rogers was everywhere, greeting the last guests to check in at night and bidding farewell to passengers who rose before dawn to catch the early train. Every kitchen, office and shop in Sun Valley was on his beat, and he visited them all at least once a day. Sometimes he would drive people to the airport or train station in his Cadillac. At lunchtime he would ride the chair lift to the Roundhouse on Bald Mountain and help serve. People who had returned to Sun Valley after an absence of a year or more would often be greeted by name, as he handed them a bowl of soup.

An avid baseball player in his youth, Rogers kept alive his passion for the sport with softball games throughout the summer. He took the games seriously, and an employee who dropped an easy fly ball or struck out once too often might find himself nose to nose with the boss, red-faced, bellowing and sometimes even ordering him to pack up and leave. After his temper had cooled, though, Rogers would forget the whole thing. Guests were encouraged to play, too. A Sun Valley team might have singer Phil Harris playing one day and General Marshall the next. In fact, one of Rogers' proudest possessions was a photograph of himself as catcher while the General stood at bat.

Rogers was often at odds with the accountants who ran the Union Pacific. To them, the flowers and gifts

Sun Valley's year-round rink and famed coach Herman Maricich have made it a national skating center.

Electra. Not just lavishly appointed, lavishly engineered.

Buick Electra. The name alone speaks volumes.

Per tradition, this Electra is very smooth, comfortable, and roomy [for six adults] and very, very luxurious. With supple seats, rich upholstery and a high level of convenience.

But we know that being luxurious isn't enough for a luxury car anymore. So the Electra is engineered with the latest technology: front-wheel drive, four-wheel independent suspension plus an available 3.8-litre V-6 with multi-port fuel injection. [It's standard on the Park Avenue and Electra T Type.]

It is an automobile with ample performance as well as ample room, and with road manners as sophisticated as its appointments. And the Electra was tested in the heat of Australia and the Alpine hairpins of Germany, to make sure it's ready for the ultimate test: yours.

Buckle up and visit your Buick dealer.

To ask any questions, request a brochure or test drive, call the Buick Product Information Center, 8 a.m. to 8 p.m. Eastern time, weekdays:
1-800-85-BUICK
[1-800-852-8425].

Wouldn't you
really rather have a Buick?

The ultimate Electra: Buick Park Avenue.

Buicks are equipped with engines produced at facilities operated by GM car groups, subsidiaries or affiliated companies worldwide.

GM

BUICK

© John Bryson

Ernest Hemingway loved the valley, but killed himself there. Here he kicks a can down lonely Ketchum road.

Rogers gave his guests were reckoned in dollars lost. Sun Valley had been a money-loser from the start, and although Rogers was doing exactly what Harriman had told him to do, he increasingly had to contend with railroad executives who preferred freight to passengers. He resigned out of frustration in 1952.

With Hannagan's death the following year, Sun Valley lost the last of its originals. Hans Hauser had been interned as an enemy alien during the Second World War and then went back to Austria. Count Schaffgotsch, who had returned to fight for the Third Reich, reportedly was killed on the Russian Front.

With Harriman devoting himself to government service after the war, the Union Pacific's new bosses began deemphasizing elegance. Staff morale suffered. It all came to a head when the Union Pacific's president, George Ashby, sat on the fender of a moving car one day and started blasting away at doves with his shotgun. Taylor Williams, Sun Valley's chief hunting guide, gave the railroad man a dressing-down for his unsportsmanlike conduct—and was promptly threatened with dismissal. That did not sit well with Williams' good friend and hunting companion Ernest Hemingway, who was further offended when he heard Ashby wisecrack, "So the Great White Hunter is still around!"

Hemingway struck back by ordering publicists to put a Ketchum dateline, not Sun Valley, on any photographs and news releases about him. Instead of being able to continue capitalizing on its Hemingway connection, the resort's publicity department was now forced to explain to inquiring newsmen that the novelist had purchased a house in Ketchum that was a mile from the resort.

Other resorts follow in Sun Valley's tracks

Sun Valley not only began to lose its cachet after the war; it soon found itself up against something that it had never faced before: competition. Aspen, Colorado, an old mining town full of gingerbread cottages, followed Ketchum's lead and took on a new identity as a ski resort. It prospered and expanded, as did a succession of other mountain communities. By the 1960s, economic prosperity had triggered an avalanche of lodges and condominiums in ski-resort areas from Stowe, Vermont, and Vail, Colorado, to Wyoming's Jackson Hole and Heavenly Valley in California.

During the 1970s, the population of eight Western mountain states—Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah and Nevada—increased by nearly 40 percent. One major factor in that heady expansion was the booming business of skiing. It had become important to the economy of the Northeastern part of the country as well, particularly in New York, Vermont and New Hampshire. Altogether, there

are now more than 700 ski areas in 40 states and there's no doubt about it: skiing today is as American as baseball or football.

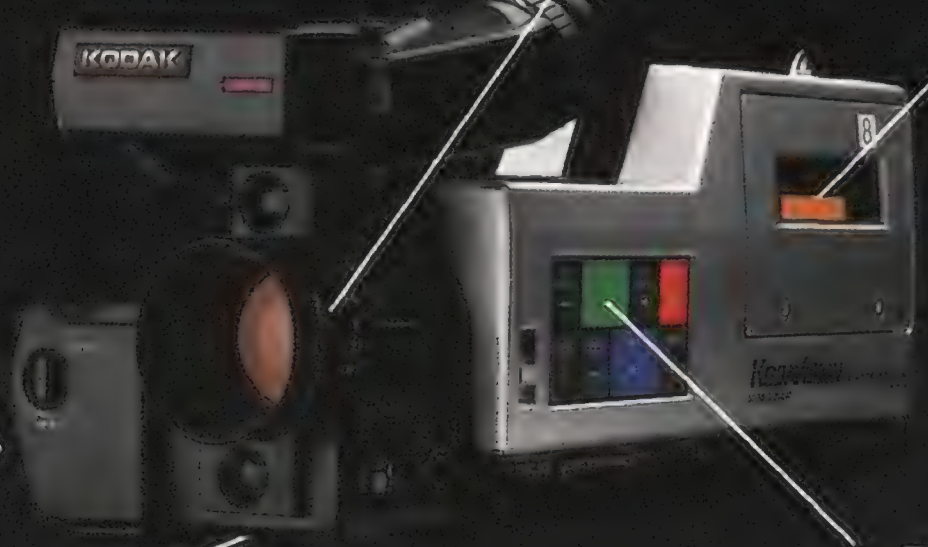
Although Sun Valley no longer dominates the scene as it once did, the resort has not stood still. After the Union Pacific sold it in 1964, the new owners built 575 condominiums and put together an elaborate year-round recreational village that includes golf, tennis and dozens of shops and restaurants. Ketchum, too, is a much different place, and it is interesting to speculate about what Ernest Hemingway might make of its chic boutiques, art galleries and elegant eateries. The town's year-round population is 2,200—and growing. Even the once-secluded local cemetery where Hemingway was buried is now hemmed in by a trailer court and a golf course.

When Pat Rogers was its general manager, the Sun Valley Lodge could handle 800 guests at a time. Now, the village can accommodate several thousand people, and Bald Mountain, with 12 chair lifts and 53 runs, remains one of the nation's top ski areas, averaging about 3,500 skiers a day. The resort is also a major center for serious skating, with a year-round rink where the renowned instructor Herman Maricich spends summers teaching talented youngsters from all over the country.

There is little doubt that Sun Valley's atmosphere has changed. In the old days, guests got to know one another on the slopes, in the dining room, at the bridge table. That doesn't happen as much any more. Individuals and couples are more inclined to go their own ways these days, and so are sports-minded young families, leaving one child in ski school, dropping off another at the ice-skating rink, eating in a restaurant one night, cooking in the kitchen of their rented condo the next.

But if the sense of shared intimacy that made it unique in the past is gone, Sun Valley still retains most of its charm and much of its clientele. Indeed, no other winter-sports center seems to inspire so much loyalty among its customers, and perhaps that's as it should be. After all, Averell Harriman didn't just build a resort in 1936; he put the nation on skis.

Slicing down Bald Mountain, a lone skier enjoys sport and splendor that have made Sun Valley a legend.



1. ELECTRONIC VIEWFINDER.

2. HAND-STRAP GRIP WITH CONTROLS FOR STOP/START, TELE/WIDE AND TRIGGER.

3. WEIGHT: ABOUT 5 LBS. WITH BATTERY.

4. AUTO FOCUS, 6X AUTO ZOOM, AUTOMATIC IRIS AND COLOR BALANCE.

5. 8MM CASSETTE COMPARTMENT.

6. PLAYBACK.

The new 8mm Kodavision. Its features were desi

Everything Kodak's learned about people and what makes them click has gone into our extraordinary new video system.

It's called the Kodavision series 2000 video system—with an extraordinary new camcorder adapted to you and the way you like to shoot. It's so remarkably light and portable, you can take it anywhere. And so uncomplicated, you'll want to.

How did Kodak do it? By pioneering a big breakthrough in home video with the new, smaller format 8mm video tape.

8MM. IT PUTS AS LITTLE AS POSSIBLE BETWEEN YOU AND THE ENJOYMENT.

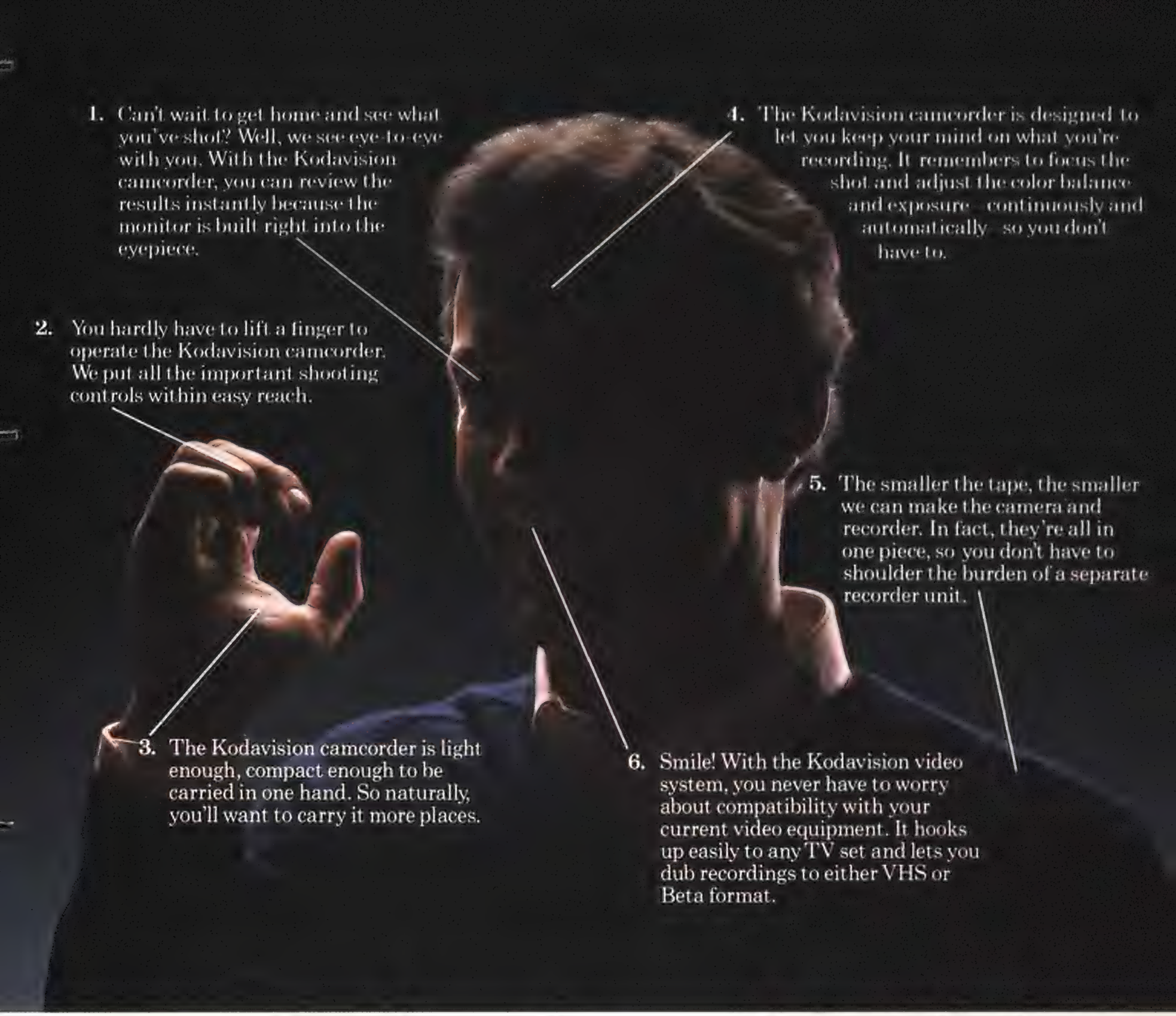
Want a video format with a brilliant future? Our 8mm video tape has the excellent quality of ½″ tape, and more importantly, gives you all the picture sharpness, vivid color and sound clarity you've come to expect from Kodak. Yet a 30-, 60- or 90-minute cassette takes up no more room than a regular audio cassette. That's what allowed us to create a small, single-piece camera and recorder. With no separate recorder unit. No messy wires or cords.

So instead of getting tangled up in the equipment, you can get wrapped up in the action.

THE *KODAVISION* CAMCORDER 2400. DESIGNED TO LET YOU FOCUS ON THE MOMENT.

Worried about missing a great shot because you're fiddling with a lot of gizmos? Don't. With the Kodavision camcorder, you simply drop in a video cassette, set a few controls and you're ready to go.

But don't think that just because it's not complicated, it's not sophisticated. The newest video


1. Can't wait to get home and see what you've shot? Well, we see eye-to-eye with you. With the Kodavision camcorder, you can review the results instantly because the monitor is built right into the eyepiece.
2. You hardly have to lift a finger to operate the Kodavision camcorder. We put all the important shooting controls within easy reach.
3. The Kodavision camcorder is light enough, compact enough to be carried in one hand. So naturally, you'll want to carry it more places.
4. The Kodavision camcorder is designed to let you keep your mind on what you're recording. It remembers to focus the shot and adjust the color balance and exposure – continuously and automatically – so you don't have to.
5. The smaller the tape, the smaller we can make the camera and recorder. In fact, they're all in one piece, so you don't have to shoulder the burden of a separate recorder unit.
6. Smile! With the Kodavision video system, you never have to worry about compatibility with your current video equipment. It hooks up easily to any TV set and lets you dub recordings to either VHS or Beta format.

camcorder from Kodak.
gned to match yours.

technology provides beautiful pictures time after time. The latest Newvicon tube. A 6X power zoom lens. And a highly sensitive automatic iris and color balance that instantly know when to adjust themselves—even before you do.

Which means the Kodavision camcorder can go anywhere the great pictures are. From the dazzling brightness of a ski slope to the low light of a grade-school violin recital.

NOW, RELIVING THE MOMENTS IS AS EASY AS CREATING THEM.

Want a camera that lets you see what you've just shot? Then look into the Kodavision camcorder. Whether you're at home or away, you can review right in the camcorder because the electric viewfinder is also a miniature black-and-white monitor. Then replay your special moments on the nearest TV, using the Kodavision converter/charger.

Or use the Kodavision series 2000 cradle with tuner/timer as a fully functioning VCR.

However, if you do want to edit or transfer a tape, you can do so on any existing VCR. The Kodavision system is completely compatible with both VHS and Beta systems.

All of which adds up to a video system that will spend its time collecting wonderful memories instead of dust. So why not visit your nearest dealer in Kodak video products and ask to experience the extraordinary new Kodavision series 2000 video system firsthand?

If you want truly enjoyable home video, you'll find the new Kodavision camcorder from Kodak matches what you're looking for.

©Eastman Kodak Company, 1984

Kodak

By Charles Bergman

Face-to-face with the stalwart imp of cactus country

The elf owl may be only the size of your fist, and it lives in a harsh and arid environment —but it is doing very nicely, thank you

Storm clouds piled over the Rincon Mountains and lightning plated the mountainsides with brief seconds of silver light. The temperature had reached 105 degrees F during the afternoon, and now the desert day seemed to consume itself in its own ferocity. A gust of wind from the building thunderstorm rattled my aluminum ladder and swayed the 30 feet of giant saguaro cactus beneath me. I leaned into the ladder and, of all things, hugged the cactus. From the ground, Susanna Goad yelled something encouraging about an "aluminum meltdown" and a "ladder of fire."

"Can you see any babies?" she asked. Working toward a graduate degree at the University of Arizona, Goad was finishing a two-year study of elf owls in the Sonoran Desert around Tucson. It is North America's smallest owl—about five inches in length. In the elf owl's best-known habitat, the desert of the Southwest, it nests in cavities in the saguaro, the stately cactus that presides over its world with an imperial air. Peeping wide-eyed from its hole in a cactus, this puckish little owl defies the violent weather changes of the region.

In fact, according to Goad, the Sonoran Desert is filled with elf owls. Within her study area at the Saguaro National Monument east of Tucson, she has located 67 nests in two years. It is one of the desert's more wonderful paradoxes that this tiny, harmless-looking owl should be its most abundant raptor. Active only at night and staying cool during the day, it remains a charming secret.

The owl's hole I was looking into was too small to put my hand in—smaller even than a silver dollar. With mirrors and a small flashlight, however, I could see two downy owls at the bottom of the cavity.

Pressing against the cactus for balance, trying at the same time to avoid the spines, I decided to take a closer look. I found my nose about two inches from the beak of a baby owl (I almost fell off the ladder). Its eyes were bright yellow, like brass buttons, wide and incredulous. The gray down on its head seemed more like lint than feathers; pink skin showed underneath. It reminded me of a little old man with a big beak—Jimmy Durante in a cactus.

The larger of the two was only three and one-half inches long, but close to fledging. Its wings were feathered, brown with white spots. It was so small that I could have enclosed it in my palm. It gathered itself together in Lilliputian ferocity. Its talons were about as intimidating as pine needles, and its bravado was comical. Goad noticed the irony. "These are dangerous raptor-types," she laughed. "Just look at those crushing talons."

However unlikely this baby elf owl seems in an environment of cholla cactus and rattlesnakes, of scorpions and tarantulas, these raptors are nevertheless well adapted to their hot and hostile habitat. In fact they are thriving and one of the major reasons for the success of elf owls in the desert has been the saguaro cactus.

"The more nests I could find, the better"

Specifics of the relationship between the elf owl and other desert vegetation as well as the saguaro were the center of Goad's study. Biologists have long known that elf owls nest in the cactus, but Goad wanted to know why the owls seem to nest in varying densities in a saguaro-studded area. As she explained, "I had to find as many nest sites as I could. The more nests I could find, the better I would understand what conditions are necessary for elf owls to select a particular saguaro in which to nest."

She created nine plots, each about 25 acres, and then spent every available night from March through July hiking among the cacti, searching for nests. During months of legwork, she used a variety of methods in her effort to find every elf owl nest hole, and to find them efficiently amid hundreds of available saguaros.

One evening photographer Art Wolfe and I joined Goad and we went out to look for nests in an area new to her. High clouds masked the setting sun in a swirl of pastels—yellow, blue and pink. In the soft light, the

Shown larger than life, fledgling owl prepares to launch from the fruit of saguaro on an early flight.

Photographs by Art Wolfe

In elf owl country after a thunderstorm, a rainbow arcs above a stand of the giant saguaro that provides shelter for the tiny raptors. Cactus insulates owls' nests from the desert's drastic temperature changes.

crimson fruit on the tops of the saguaro cacti looked like small tongues of flame on huge green candles.

Later, flashlights in hand, we began hiking through the desert looking for what Goad called "saguaros of suspicion. We'll look for cacti that are big and have lots of arms on them," she said. "When you find one, stop and listen carefully. After dark the baby owls begin to beg."

When there are babies in the nest, Goad finds the owls with her ears. We separated, and within five minutes she had found a nest.

"I can hear one!" she cried. "I think the nest is in that big cactus." She pointed to a saguaro 150 feet away across an arroyo. Her ears were well trained; I could not hear the babies until we got closer. A loud, rhythmic rasp, the begging sounded vaguely like rubber rubbing against rubber. Once sensitized, I was amazed at how well the faint sound carried through the quiet night. "Which hole do you think they're in?" I asked. The saguaro was about 40 feet tall, with five arms arcing upward around a central stem, all containing likely holes.

She beamed her flashlight onto the top hole on the central stem. "See how it's brown and worn away around the hole? The adults do that when they land."

"You're right," I whispered, looking through my binoculars. "I see an owl." The round face of one of the adults filled the tiny hole, like a puppet peeking out from a green pleated curtain. Prominent white eyebrows jagged across its sandy-brown facial disks.

We sat down to watch the nest, resting on small air mattresses. "Not just any saguaro will be a nest site," Goad explained as the parent owls began flying in and out of the cavity, feeding their babies. The number of nests in an area depends not on the number of saguaros, but on the age of the saguaro. In fact, her densest plot, of about 1,300 cacti, had no elf owls. These stands are usually crowded with relatively young plants. But mature saguaros, estimated to be older than 150 years, turn out to be "dynamite for elf owls," Goad said.

Shortly after sunset, the owls began intense bouts of feeding that lasted until midnight. The adults returned with food for their babies every five to ten minutes. A lull followed in the middle of the night and activity picked up again for two hours or so before sunrise. From our seats on the ground, we looked up

Writer Charles Bergman and photographer Art Wolfe worked on mountain goats in Olympic National Park for the August 1984 SMITHSONIAN.

The Taste of Time.

MONTERREY COUNTY
CHARDONNAY
Vintage 1983
This aristocrat of white wines is pleasantly crisp with a fragrant bouquet and rich complex flavors. Serve chilled. Alc. 12% by Vol.
PAUL MASSON
Produced & Bottled by Paul Masson Vineyards, Saratoga, Ca

Seven years for the vines to mature.
Four weeks for the buds to flower.
Six months for the grapes to ripen.
Expert care to make and age
the wine to perfection. Paul Masson
proudly presents its incomparable
Chardonnay. Pleasantly crisp and
delicate…well-balanced and
elegant…full and firm in its bouquet.
Drink this superb white wine the
way we made it. Slowly.

Paul Masson will sell no wine before its time.

1984 Paul Masson Vineyards. Saratoga, CA

Gila woodpecker has carved a nest in saguaro cactus; it may later become "home" for an elf owl family.

Biologist Susanna Goad climbs ladder to reach cavity and uses small mirror to observe owlets in their nest.

toward the sky. A full moon gave the high clouds a phosphorescent luminousness. The saguaros rose around us in fluted columns, dark towering silhouettes. A dark shape whisked into a palo verde tree to our left and began to call, a high-pitched yap like a small lapdog.

"Both sexes give that call when they are feeding their young," Goad said. "You can't tell the difference between males and females by looking at them, but you can by some of their calls." During the early part of the breeding season when the males set up their territories, they have a territorial bark. The females have a prefeeding squeak when they are laying and incubating their eggs. "Elf owls have a pretty good repertoire," she added.

Babies beg for food with a rasping cry

The bird's yapping excited the babies, which began "rasping" frantically in the nest. We put a flashlight on the parent. The tiny owl had a white breast mottled with indistinct brown streaks. Elf owls use palo verde and mesquite trees for roosting and singing and as staging posts before flying to their nests. The owl fluttered out of the palo verde. His wings, which spread almost three times the length of his body, and his short tail made him look more like a big moth than an owl. He swooped to the top of a small saguaro, a dot against a pewter-color sky.

"Would these owls eat a big sphinx moth?" I asked.

"They might," Goad answered. "That's why we're collecting prey items from nests."

The parents brought in a wide range of unappetizing desert fare for their babies, including moths, seven-inch centipedes, even scorpions. As part of her study Goad checks nest cavities when the owls have fledged to "dredge out prey items from the bottom." She has found scarab beetle parts, Jerusalem cricket legs and the tiny jawbone of a pocket mouse in nests, indicating that the birds bring a variety of creatures for their young to consume. As we gathered our gear to leave the nest about 2 A.M., Goad lifted an air mattress and hollered at us. "Look! A stripe-tailed scorpion!" She was pleased with her find. About an inch-and-a-half long, the pale scorpion had slid under the mattress while we watched the owls. I found a certain discomfort in the thought that we had been sitting there.

We walked through the desert to try to find another nest. Like trees in a forest, saguaros have more cavities in their trunks as they age. Most of the cacti in the area that night were short and green, about 15 feet tall. Although we found tarantulas and rattlesnakes and even a saddled leaf-nosed snake, we found no more elf owl nests. We had found the only one in the area within the first 15 minutes of searching, though we

We drive cars through sand storms or ice storms. At 120° in the Arizona desert and 40° below in the Canadian tundra.

We run cars over cement blocks, gravel, cracks, potholes and pits. Again and again and again.

We use a machine to batter in roofs. Or we slowly crush front ends in a powerful vise.

Last year we willingly put cars—ours and others—through 27 million miles of test driving.

And it's all for you. Because it takes repeated analysis of wear and tear at these extremes to find new ways to make your car last longer and perform better in normal use.

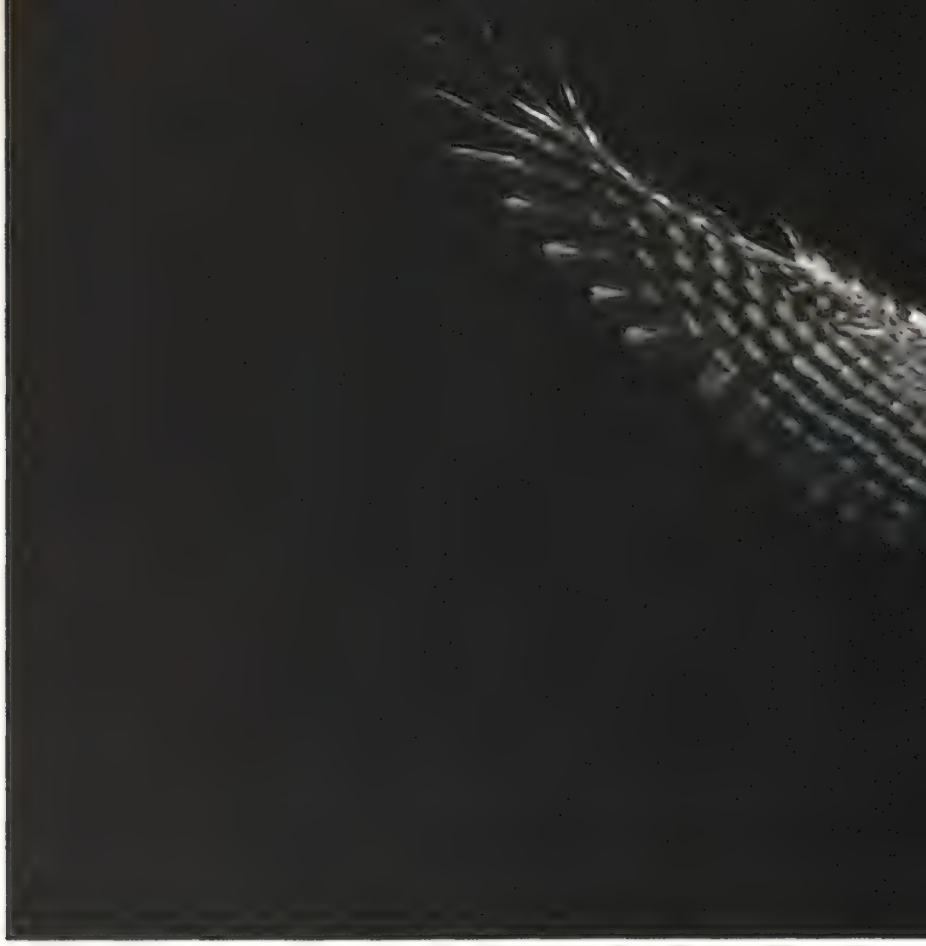
We believe in taking the extra time, giving the extra effort and paying attention to every detail. That's what it takes to provide the quality that leads more people to buy GM cars and trucks than any other kind. And why GM owners are the most loyal on the road.

That's the GM commitment to excellence.

GM

Chevrolet • Pontiac • Oldsmobile • Buick • Cadillac • GMC Truck
One way or another, we will destroy this car.
Let's get it together. Buckle up.

Nobody sweats the details like GM.



Flaps down, adult elf owl carrying insect to feed its young drops its feet in preparation for landing.

stayed on and looked for more than an hour and a half.

We did have a moment of false hope, however, at one ancient saguaro that stood with the dignity of a dying hero. We saw a bird in one of the cavities—both Goad and I thought we saw the white eyebrows of an elf owl. In the flashlight, however, the eyebrows turned into a long beak. It was a gila woodpecker.

Gila woodpeckers and flickers excavate the holes that elf owls use. In late March, when the saguaros are turgid from the winter rains, the pleats in the cacti almost flatten out as the saguaros swell with water. About this time the woodpeckers begin pounding on the softened cactus, pecking and flicking the juicy pulp like hammers on a watermelon. The woodpeckers dig in a few inches and then down for about a foot. After a hollow is bored into the plant, the saguaro secretes a mucilaginous film over the wound, which hardens into a callous, ligneous formation. The hole in the cactus is sealed off with this woody substance, tougher than the saguaro itself. This hardened callus seals the plant against loss of moisture. (Often, at the site of a fallen saguaro, you can find one of these wooden "boots," once a cavity nester's home, still intact though the cactus has rotted around it.)

As Goad puts it, "A saguaro cavity is a pretty good place for elf owls to hang out." Inside its cavity, the bird can look out serenely on the dangers of the desert. In technical terms, the saguaro offers the owl "thermal regulation," natural air conditioning. Researchers have found that when temperatures rose above 110 degrees F outside, the water-cooled pulp of the cactus would be as much as 20 degrees cooler inside. At night, the cavity in the cactus stays relatively warm as external temperatures drop by as much as 40 degrees. Elf owls have exploited the cavities in the saguaro for a good reason: they have no special physical adaptations for surviving the searing desert heat.

Goad has found so many elf owls around Tucson because there are so many mature and senescent saguaros in the valley. But alarming numbers of the old cacti have been dying. In fact, Saguaro National Monument was established in 1933 to protect this spectacularly dense concentration of giant saguaros. Apparently, about 150 years ago, conditions were excellent for the germination and establishment of the regal saguaro. However, during the past 45 years, the saguaros seemed to have been succumbing to an epidemic. Park managers have been concerned for the plants for decades and the mass death of old saguaros is a potential threat to Goad's elf owls.

For a long time, no one was able to answer the question of why the cacti were dying. Charles H. Lowe and Warren Steenbergh, however, solved the mystery in 1977 with their definitive, three-volume study entitled *Ecology of the Saguaro*. "People thought it was a disease," Lowe explained as he and I drove west of Tucson toward one of his original study areas. "Saguaros were going down in the middle of the summer. Plant pathologists went out and found bacteria on the rotting cacti and so they called the disease bacterial necrosis." To stop the plague, the Park Service began a sanitation program. "They were plowing saguaro into big burial pits," Lowe recalled, "and bulldozing them over."

According to Lowe and Steenbergh, it was not bacteria killing the cacti, it was the weather. "I was already studying the effects of freezing in a hot desert," said Lowe, "and it was a logical step to find that the freezes were killing the cacti."

Lowe pointed toward a healthy cactus. "See that

Shortly after sunset adults begin intense bouts of feeding that last through the night and end at dawn.

one," he said. "It's a good saguaro for Tucson, straight and green and vigorous." Then we began looking at others—Lowe called them "trees"—not uncommon to the Monument. We approached a tree with one arm drooping toward the ground as if it had wilted. "The winter freezes do that to the cacti, making the arms twist downward." The pulp in the arms turns to mush from the freezes.

We found an old, dying saguaro secreting a black ooze, drying hard to the touch and attracting a cloud of gnatlike insects. "A severe freeze," Lowe explained, "can kill a saguaro. The plant is either killed outright or it may get moribund. By April, the weather gets so warm, the saguaro starts decomposing—a bacterial rot sets in and blackish tar comes." It was this bacteria that early researchers had mistaken for the cause of the cacti's death. Some of the stricken cacti fall the first spring after a freeze. Others may take as long as nine years. Once the pitch appears, however, death comes fast. These grand cacti, weighing up to ten tons, can crash to the ground like timber under an axe.

The saguaro in Arizona is on the northern edge of the range for the species. More often than the Sonoran Desert in Mexico, the Sonoran Desert in Arizona is characterized by occasional freezes in the winter. The 1930s and the '60s saw especially harsh winter freezes and the decline of the old saguaros in the area was simply part of a natural fluctuation, the species responding to a climatic limiting factor.

Despite the freezes and the decline, the saguaro in Arizona is not vanishing. "The saguaros are replenishing themselves with thousands of young plants," ac-

The parent owl lands on hardened edge of nest hole with food for babies who emit a raspy, begging cry.

Adults in the nest with owlets will leave and return with insects every five to ten minutes during feeding.

Adult owl and fledgling perch in a nest-hole cavity in a dead saguaro well worn by previous tenants.

cording to Lowe. "Only the old saguaros are declining." But they grow very slowly and do not put out arms until they are about 70 years old, and then they are only about 12 feet tall. With the older plants dying, it will be a long time before elf owls again find such dense stands of mature saguaros for nesting.

Susanna Goad is optimistic about the elf owls, however. Although the number of mature saguaros in Arizona is in decline, the elf owl is not. These birds also breed in cavities of sycamores, cottonwoods, oaks and other trees in nearby mountain canyons.

Although the focus of her research has been on habitat selection, Goad has also spent several months of desert nights, as she puts it, "following the owls around to observe their behavior." The first year of her study she tried to find nests by checking every hole in the cacti on her plots. "What a headache," she recalled. "I would haul that ladder out and climb every cactus. Talk about hot work." She found only a few nests that way, but in the process she gleaned considerable insight into the elf owl's natural history. The males return to Arizona in the spring before the females. They give themselves away because they start barking their territorial call, the "puppy yap," as they seek out nest holes. The females arrive later and by that time the males have selected appropriate nest sites and are defending their territories. The males court and woo the females, apparently, by singing to them and feeding them. Females have to be coaxed into a nest cavity gradually, where they settle in before laying their eggs. "I found there are usually two eggs per nest and they're rather large for the owl's size, a little more than an inch," said Goad.

In those early weeks she found only seven nests by using her aluminum ladder. Then things got even worse. In May, when the males' song became infrequent and the eggs were being incubated, she found no more nests. On June 18, however, she heard a new sound. The owlets had hatched and grown large enough to make noise and she heard their begging call drifting through the nocturnal stillness. That night alone, she found seven more nests, doubling her total for the previous three months. (It is known that elf owl eggs incubate for 24 days; the owlets fledge 28 to 33 days later.) The young required about three more weeks before fledging during the first or second week of July. In those weeks, Goad found 30 nests. At one, Goad and I watched parents in what appeared to be an attempt to coax the babies into leaving the nest. One parent called to the nest from a nearby palo verde, the other called from a mesquite. For 20 minutes we watched the tiny silhouettes in the trees, big wings folded over their backs. Goad served as translator: "Okay kids. This is it. Come on out of there." They stayed put, but on other nights we saw many young elf owls cactus-hopping through the desert.

In October most of the elf owls leave the Arizona Sonoran Desert for the winter. In 1968, University of New Mexico biologist David Ligon discovered their wintering grounds in Rio Balsas Basin, in Michoacán in western Mexico, in Puebla to the east, and at other points in between.

Goad believes that, with careful planning, humans and elf owls can coexist, even though "southern Arizona is growing fast, with huge demands being made on the land." Tucson is bulging at its suburban seams, extruding split-level homes into the desert. Although Goad has found owl nests in saguaros in the expanding suburban tracts—she found one nest within three meters of a house—she is not confident that the elf owl could thrive there. It is necessary for the preserve at Saguaro National Monument and other refuges in Arizona to be protected. The elf owl population should then continue to flourish.

I do not doubt the diminutive elf owl's ability to persist, however.

In Madera Canyon, about 40 miles south of Tucson, a pair of them have nested in a telephone pole in front of a tourist lodge for long enough to make it into the birding guides. I once saw the resident adult elf owl sitting on the wire at dusk beside its top hole, just after the young had fledged. The young were rasping from nearby sycamores along the stream. I tried to locate them with a flashlight, but they remained invisible, like impish, teasing spirits. The parent yapped back to them. A new generation of elves was learning the secrets of survival in the Arizona night.

Looking self-satisfied as Garfield the cat, a heavy-lidded owlet prepares to dine on a skipper butterfly.

WHAT SHOULD YOU
WORKING "PARTNERSHIP"

"At American Cyanamid's Medical Group, HP computer systems will cut annual production costs by $4.4 million.

"Because the HP systems deliver more accurate analyses of test results, we're saving $250,000 in raw materials."

Dr. Bill Zeitz, Director of Medical Group Information Services, says: "American Cyanamid's Medical Group is replacing mainframe use in its manufacturing plants with six HP 3000 computers. The HP systems automate materials and production management, factory order entry, and quality assurance programs.

"Because the HP 3000s can communicate with each other and with our corporate IBM mainframe, we've eliminated the need for additional communications links, thus cutting annual computing costs by $1 million. And by 1985, with all HP systems up and running, we expect to realize an annual savings of $4.4 million.

"We needed a lot-control program tailored to the pharmaceutical industry—one that would track and process information by product lot number. In just four months, an HP task force developed a software product that met our requirements, and provided a lot-control solution for the entire process industry."

EXPECT FROM A WITH HEWLETT-PACKARD?

"At Deaconess Medical Center, HP CARE-NET systems improve patient monitoring and maintain close to 100% reliability.

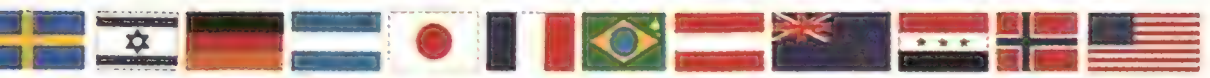
"Our HP computer-based systems enable us to analyze patient data faster than ever before. It used to take half an hour just to calculate a patient's hemodynamics; now we're getting results in one minute."

At Deaconess Medical Center in Spokane, Washington, Bim Lindsey, Manager of Cardiovascular Services, says: "We have two HP patient monitoring networks in our intensive and cardiac care units. Before, we needed several monitors to provide us with the critical-care patient information that we now get from just one HP monitor/terminal. Also, nurses can access information on any patient from any location in a network, enabling us to respond instantly to a patient alarm.

"The modular design of our HP systems means we can expand the networks as our needs change. With this kind of flexibility, we know our investment is protected.

"Our systems were installed and up and running in less than three days. Add to this the near 100% uptime reliability of the HP systems, and it's easy to understand why we plan to standardize on HP over the next five years."

Results with assurance.



HEWLETT PACKARD

0002412

Metropolitan Museum of Art, New York

Tate Gallery, London

Degas painted this portrait of his friend Tissot, appropriately in an artist's studio, circa 1868.

By Tom Prideaux

A French artist's Victorian world of tense decorum

Back in fashion once again, James Tissot's precise portraits of English and French society are decorative, frilly—and unsettling, too

The Ball on Shipboard was not a hit when first shown in 1874, but is now considered a major Tissot painting.

If James Tissot were invited to an imaginary banquet of major French painters in the 19th century, where would he sit? Next to his old friend Edgar Degas, whose portrait of him hangs today in the Metropolitan Museum? Or near Edouard Manet, who visited Venice with Tissot in 1874? Or beside his cheeky American friend James Whistler, who might have bobbed up as a special guest?

Or would Tissot have been included at all?

Tissot became rich and famous, but he was a swimmer against the tides. His conservative style of realism defied the onrushing waves of Impressionism that were changing art history. Tissot had a rage for details: for intricate rigging on sailing ships, individual leaves on trees, household objects, an excess of frills on women's clothes. Painting the Three Wise Men riding to Bethlehem, Tissot added a dozen extra camels.

Most important critics were abusive. John Ruskin, detecting no hint of moral uplift in some of his work, called it "mere coloured photographs of vulgar society." Edmond de Goncourt observed that Tissot had "the eyes of a dead fish." Henry James, living in London, looked at a Tissot and called it "stale . . . sterile." In 1927 he did get a wholehearted but posthumous pat

Private collection, Paris

Setting for view of members of an elite club at their ease is a balcony on the Place de la Concorde. Figure at extreme right is Parisian dandy Charles Haas, who was the model for Marcel Proust's noted character Swann.

on the back from a cultivated critic. Sacheverell Sitwell proclaimed *The Ball on Shipboard* "in every respect, the best picture of social life of the time."

Today, in one of those periodic shifts in public taste that enliven art history, Tissot is up for reappraisal.

More than a dozen U.S. museums own his work, and last spring an American art historian, Michael Wentworth, published *James Tissot* (Oxford University Press). Engrossing and scholarly, it is the first major book on Tissot ever written. The summer before last 100 Tissot illustrations for the Bible were rescued from storerooms in two American museums and are currently on a U.S. tour sponsored by the Smithsonian Institution Traveling Exhibition Service. (This month the show is at the Montgomery Museum of Fine Arts in Montgomery, Alabama.) After years of obscurity, Tissot's work has soared phenomenally in value: in 1983 one of his paintings was auctioned at Christie's for $842,400.

None of this activity, of course, can make Tissot what he is not: a great master. But as a limited artist of exceptional charm and dexterity, a lesser master he is.

Part of the pleasure of knowing Tissot relates to his strange life, which finally led him three times to the Holy Land, and into spiritual seances where, he said, he was kissed more than once by a ghost.

Tissot was born in 1836 in the French port of Nantes. As a boy he studied the great sailing ships at anchor, and he saw how they caught the prevailing winds. He also saw how his pious Catholic family prospered as clothing merchants by catering to the prevailing winds of style.

When Tissot decided to become an artist, he left home to study in Paris. He was firmly influenced by a Belgian romanticist, Henri Leys, who felt art should glorify God and medieval history. Tissot's early success was dazzling. At the nation's highest art tribunal, the annual Salon exhibit, he had five paintings ac-

Tom Prideaux, a former senior editor of Life *magazine, wrote about theater restoration in the United States for* SMITHSONIAN, *June 1983.*

Minneapolis Institute of Arts

Tissot devoted his last years to the creation of a series on the life of Jesus, and then to illustrating an edition of the Old Testament. He painted several oils on Biblical themes, including *Journey of the Magi*.

cepted: a classic case of out-of-town boy makes good—at age 22.

Though Tissot was acquainted with some members of the youthful Guerbois Gang, including Manet, Whistler and Degas, who met often at the Café Guerbois to argue and shout over their radical views on the arts, it is not recorded that he was an habitué of the café. Tissot also liked to be associated with conservative men, who symbolized the sort of safe success he worked for compulsively all his life.

Of the artists he knew, however, Tissot did have a close friend in Degas, one of whose paintings Tissot criticized in detailed notes, such as "ceiling should be lighter," "too red the floor." But it is pleasant to report that Tissot, sometimes accused of having no heart beneath his stuffed shirt, wrote affectionately to Degas, "How touched I was by the kindly friendship you showed me during the last few days when I was ill . . . I congratulate myself more than ever on knowing someone like you." Degas painted his portrait in 1868 and kept it in his studio many years.

Born Jacques-Joseph Tissot, it has been said that he changed his name to James as a tribute to Whistler. But more likely, since he was looking for new fields to conquer, he felt it would help his career in England; in 1864 he had already exhibited at London's Royal Academy. In Paris, he was earning enough through the sale of his paintings to build himself a house on a fashionable avenue close to the Arc de Triomphe, and to fill it with a variety of art objects. Tissot had developed a gift for depicting contemporary French aristocrats with a delicate balance between unassuming grace and arrogance. Betweentimes he also painted frilly beauties, one with a daisy in her mouth.

Tissot was struck by the sudden influx of Japanese art in Paris. But while his friends, men such as Whistler and Manet, experimented seriously with Japanese art styles, Tissot simply tossed in a few fans, kimonos and parasols to make his pictures more charming, more popular. Later he would apply some Japanese art principles to his own work, especially his etchings.

One of his best works, *Le Cercle de la Rue Royale*,

James Tissot is back in fashion

portrays a dozen members of an elite male club perched on the pillared gallery of their regal roost on the Place de la Concorde (it later housed a Morgan bank and the Paris base of Time Inc.). Here was certainly a dull subject, drab as any board-of-directors meeting. But Tissot deployed brilliantly his array of aristocrats. Some wear odd jackets, top hats or no hats. Some sprawl or slouch. A count sits on a balustrade with one leg tucked under him like a schoolboy. A tall, imposing figure, the only nonaristocrat in the group, surveys the viewer speculatively from the far right of the complex composition. He is Charles Haas, a noted dandy of the day, whom Marcel Proust used as a model for his hero, Swann, in *Remembrance of Things Past.* Proust, in his monumental novel, takes note that his central figure had been painted by Tissot.

A further sign of Tissot's growing fame was his new job providing caricatures of noted Europeans for a new London weekly, *Vanity Fair.* He kept this job going for eight busy years, working both from Paris and London, sketching everybody from Emperor Napoleon III to Charles Darwin.

Tissot joined a company of Paris sharpshooters defending the city during the Franco-Prussian War in 1870, and according to Manet, he "covered himself with glory." At the French defeat, Tissot jumped out of character and supported a commune of workers and revolutionaries who fought the Germans and captured Paris, briefly, until they were savagely defeated by their own countrymen. Tissot joined the Commune, it was said, to save his home from their plundering. But his motives were unclear. At the war's end he moved to London, as did several other artists, for the plausible reason that war-tired France was no place to sell art; thus began an important new phase of his life.

Tissot shared with his friend Whistler, now living in London, an affinity for the Thames, which reminded him of his boyhood amid the ships at Nantes. He also developed a Whistlerian skill as an etcher of London harbor scenes.

Within two years Tissot bought a home with a garden on the edge of London. His fastidious sense of style was teased by social critic Goncourt, who wrote that in England Tissot always kept a bucket of iced champagne in his waiting room for visitors, and a butler in silk stockings dusting and polishing the shrubbery leaves.

Tissot's home had a hint of a modern Hollywood movie lot. He built a large pool encircled by stately Ionic pillars, copied from the Parc Monceau in Paris, which was wonderfully useful as a background for paintings. In his studio he installed a three-sided bay window copied from a Thames tavern, which he used repeatedly for cozy interior scenes. He "faked" the harbor views outside the window, copying his own on-the-spot sketches made earlier.

He kept a supply of costumes, scarves and especially bonnets (his mother once ran a hat shop), many of which turned up over and over in different pictures. Sometimes, oddly, he dressed women exactly alike (pp. 134 - 35) just because it unified the scene. He used toy theaters to plan settings and lighting effects; and before starting a big canvas, he sometimes made a full painting of the background—like a stage set without actors—in order to work out minute architectural details. He not only painted his pictures, he produced and directed them.

Impassive faces, orchestral tensions

Tissot took due note of the Victorian craze for story-telling pictures and is sometimes listed today among England's narrative painters. But he avoided explicit sermons against Godless behavior, opting instead to depict people under a variety of tensions. Some of his pictures may be compared to the elusive fictions of Gide and the dramas of Pirandello. Today they suggest the plays of Harold Pinter, with their hidden conflicts and smoldering silences.

In Tissot's *Portsmouth Dockyard* (opposite, top) a handsome sergeant sits between two beautiful women in a rowboat, courting one, ignoring the other, whose face betrays no emotion. But the tension is there. In *The Last Evening* an impassive girl confronts the possibility of a broken life. She visits her lover on a ship just before he sails away. Forever?

Tension is implicit in the cozy tavern scenes, where the indoor tranquility of a woman's world with its table set for tea contrasts with the tumultuous harbor just outside the window. And in *The Ball on Shipboard,* a most elegant and fashionable painting, the tensions are virtually orchestral, with flocks of lovely

Tate Gallery, London

Victorians liked storytelling pictures. Tissot obliged, in this case with *Portsmouth Dockyard*, above.

Guildhall Art Gallery, London

In *The Last Evening*, a young, pensive woman goes aboard to say farewell to attentive ship's officer.

Musée du Petit-Palais, Paris

Pastel, *Le Journal*, was one of a series in colored chalk done after artist left London and returned to Paris.

ladies chatting with potential swains, a glimpse of dancers swaying together on a lower deck, and the built-in unease of all ships on water.

Members of London society were a bit suspicious of Tissot's French style. Was he teasing when he made them look so chic right in the middle of Queen Victoria's virtuously frumpy era? It was a time when, as Henry Adams said about a visit to England, "fashion was not fashionable in London." So the upper classes lashed out at Tissot's work whenever they detected a whiff of French wickedness, but paid him extremely well anyway, and enjoyed having their cake and eating it too: looking smart in his pictures yet voicing their moral superiority.

The most important love of Tissot's life was an ill-starred gentle beauty, Kathleen Newton, who at 17 was shipped to India to marry a surgeon in the Indian Civil Service. The couple parted after a week, when the bride confessed to having had a fling with an English captain (by whom she later conceived a child). A daughter was born in 1871, and five years afterward Kathleen came to live with her older sister near Tissot's house in London. At that time she gave birth to a second child, a son; it is possible that Tissot was the boy's father. In any case, he invited Kathleen and her two children to share his luxurious home.

It was not unusual for artists in England to keep live-in models (both Whistler and Rossetti supported red-haired beauties) who took for granted being ignored socially and stayed home while their keepers dined with the elite. Tissot could easily have kept Kathleen in relative obscurity, but instead the lifelong bachelor made a startling adjustment. He grew more and more content to stay home with Kathleen, using her and the children so often as models that he created a family album of intimate scenes that everyone could enjoy: picnics, croquet games, lolling on the lawn, lots of lap sitting and snuggling.

But even now a feeling of tension emerges in Tissot's pictures. It was learned that Kathleen was suffering from consumption, and a shadow of death begins to haunt the Earthly paradise. In one of Tissot's last portraits of her, Kathleen is resting outdoors in a cushioned chair. Her eyes are deeply shadowed but her pale face is serene. In 1882 she died at the age of 28 in Tissot's house.

When Tissot resumed living in Paris, his observant friend Goncourt reported with surprise that Tissot, usually a pretty cool customer, was devastated by Kathleen's death. He was trying, it appeared, to lessen his sorrow with hectic activity. In addition to holding a huge one-man exhibit (102 works), he finished illustrating a Goncourt novel and produced an ambitious set of 15 paintings, *Women in Paris*, showing them in their varied pursuits, from running a shop, gadding at a café, glittering at a ball, to performing gaudy circus acts. The series is overexcited, too full of details, but still a vital document of a sparkling city.

Ironically, while Tissot assumed that his work would be valued most for its attractive subject matter, its interest today lies more in the questions it raises about Tissot's character or, if you like, his psyche.

An electric charge of personality

An American psychiatrist friend of mine, giving a number of random impressions of Tissot from a first look at his work, has said: "Very high energy level. He weaves and elaborates—almost orchestral—but despite his flamboyance he is always lucid. Misleading tranquility. He is too much locked into details. The details pull you, so you can't rest. They suggest an inner turbulence. But if he had any difficulty, it is well contained and well utilized."

A further comment on Tissot by his biographer, Michael Wentworth, is also penetrating: "Tissot's pictures would be of little interest today . . . but for the tart, sharp flavor of his own personality, which runs like an electric charge through the trivial content of

COME ALIVE, COME AND DRIVE

NISSAN

MAJOR MOTION

NEW NISSAN MAXIMA GL. A WORLD CLASS SEDAN THAT DOESN'T COST THE WORLD.

Thinking about a luxury sedan? We invite you to compare the performance, features and styling of Nissan's Maxima GL to any import or domestic available. Best of all…compare the price!

FUNCTIONAL TECHNOLOGY

A keyless entry system is just the beginning. Choose the electronics package, and see fuel capacity and engine torque monitored in digital. Choose leather seats that adjust eight ways. Standard power windows, air conditioning, cruise control, 6-speaker stereo with cassette, all add up to one of the world's most sophisticated sedans, at any price.

BELT YOURSELF

NEW FUEL-INJECTED, 3-LITER V-6

Nissan doesn't believe in lethargic luxury. The new Maxima power plant generates more horsepower than BMW 325e, Audi 5000…even more than a Porsche 944.

QUALITY IN MOTION

Nissan's commitment to quality is legend. Their skilled craftsmen have made this Maxima the best ever. Drive the 4-door sedan or wagon at your Datsun dealer. Both are luxury in motion.

THE BEST EXTENDED-SERVICE PLAN AVAILABLE:

Up to 5 years/100,000 miles. Ask about Nissan's Security Plus at participating Datsun dealers.

NISSAN NISSAN

Musée du Baron-Martin, Gray, France

Lovely *Mme. Newton à l'ombrelle* was one of many sketches and paintings of Tissot's beloved mistress.

his pictures, shocking them out of the commonplace with a powerful thrust."

One time while he was attending Mass at St. Sulpice, Tissot had a harrowing vision of a bleeding Christ that changed his life. During Kathleen's illness he had illustrated in four pictures the story of the Prodigal Son, which suggested that he might compare himself to the repentant runaway. Now he was totally resolved to devote himself to illustrating the life of Christ, as told in the New Testament. He embarked for four months in the Holy Land.

Scorning the visionary fancies of most religious painters, Tissot made hundreds of literal sketches in Palestine, Nazareth and Damascus, took reams of notes and photographs, talked to learned rabbis and made measurements. He told his astonished father that Calvary was "only 20 to 22 feet high," and painted a picture of what Christ saw from the cross as He looked down on the crowd only a few feet below. Touchingly, it seemed, Tissot bestowed his meticulous documentation on the altar of Christ just as the legendary Juggler of Notre Dame did his humble circus act before the statue of the Madonna.

Back in Paris, Tissot still felt ill-prepared; he returned to Palestine for further research. For models, he recruited all manner of people, even café waiters. But for Christ, he claimed that the Savior's face materialized specially for him to copy.

The New Testament illustrations, riding the wave of a Catholic revival in France, were an astonishing success when they were exhibited in both Paris and London. Men took off their hats, women fell to their knees and crawled on the floor. Tissot, for the only time in his life, was called a great master. He sold book rights to his works for a million francs.

A boulevardier even on deck

Logically, he resolved next to tackle the Old Testament and headed back to Palestine for more data. A passenger on the ship taking Tissot to Alexandria was awed to observe how the inspired artist, "a very neatly-dressed, elegant figure with a grey military moustache and beard . . . appeared on deck gloved and groomed as if for the *boulevard.*"

In their entirety, the Bible sets are a mixed bag. The pictures, mostly small, are painted in gouache and watercolor, and a few in oil. Some have a lovely visionary quality, others are oddly trashy. But as often happens with Tissot's lesser works, they gain interest as a glimpse into an extraordinary man.

Along with his return to religion, Tissot found consolation after Kathleen's death in the darkened parlor of a famous and shamelessly fraudulent English spirit medium, William Eglinton. At a seance, Kathleen, not

that surprisingly, considering the circumstances, appeared as a glowing apparition accompanied by a male ghost holding a lamp. Tissot asked her to kiss him. She did, shook hands and faded away. Tissot documented Kathleen's visit in a painting, now lost.

In the last 16 years of his life, Tissot traveled 20,000 miles in the course of creating and marketing his Bible pictures; he made two trips to America, going as far west as Chicago. But aside from painting himself in *Portrait of the Pilgrim*, he did not parade his own piety unless a bit of deliberate martyrdom may be inferred from an incident reported by the *New York Times* on November 19, 1888, under the self-explanatory headline, "French Artist Bruised and Shaken up in an Attempt to Board a Madison Avenue Bus."

Tissot retired to a rural chateau inherited from his father, and died in 1902 from a fever that he contracted while supervising the digging of a fancy garden pool.

Tissot photographed a bonneted Kathleen Newton and used the picture as a model for the painting below.

In the finished painting, *En plein soleil*, Kathleen appears in a dappled and idyllic scene. Even after she fell ill Tissot continued to paint her, relying on the camera when she became too sick to hold a pose.

Private collection, New York

Imagine a boat that floats on land when it runs out of water.

It speeds over the sea at 40 knots. Soars over sand dunes and bushes four feet high. Then delivers its cargo right where it's needed.

The boat is real. It's Textron's LACV-30, from Bell Aerospace. We're building it for the United States Army.

The LACV-30 air-cushion vehicle is just one part of Textron's aggressive product development program.

Others include high-speed construction tools and dual writing systems for high-style pens. Hands-off aircraft landing systems and advanced, electronically controlled machine tool systems. Laser-hardened aircraft fasteners and helicopters that turn into planes.

Textron is a diversified manufacturing company with a major stake in aerospace/electronics. We've built our future on a solid present, with significantly improved productivity and a strong financial position.

Which means we're well equipped to keep turning ideas into earnings.

TEXTRON

Where imagination becomes reality.™

© 1984 Textron Inc.

By Grayce P. Northcross

Bluegrass exhibit corrals tiny models of famous horses

The sun shines brightly on the new Kentucky home of more than 400 lifelike carvings that celebrate the horse's golden age in America

American mustang in Mervis collection at Kentucky Horse Park was made by Chicago carver Peter Giba.

The Kentucky Horse Park is an unusual state-owned educational facility situated on 1,000 acres of rolling Bluegrass country outside the city of Lexington. It consists of miles of white fences, an exercise track for racehorses, 32 different breeds stabled in 15 airy barns, and a kaleidoscopic exhibition housed in the International Museum of the Horse.

A huge bronze statue of the champion thoroughbred Man o' War dominates the entrance to the park. Inside, there is another replica of Man o' War. This one is only five inches high and it's made out of wood, but it is every bit as imposing, in its way, as the big bronze outside and the real horses in the barns. It is part of a remarkable assortment of 440 miniature horses and horse-drawn vehicles that may just be the finest collection of its kind in the world.

Among the intricately carved scale models on display in the International Museum are 35 different breeds of horses and a rare assemblage of carriages, Conestoga wagons, bobsleds, heavy transport wagons, sulkies, carts and phaetons. Many of the really great horses of this century are represented here, with especially fine replicas of Citation and King's Genius, the famous American saddle horse. The resplendent carriages of royalty and the rich add a touch of pomp and ceremony. But it is the preponderance of ordinary and commercial carriages and wagons that underscores the important role horses played in the everyday life of this country until World War I and the beginning of the automotive age.

Arabian stallion Raffles is one of many miniatures Calvin Roy Kinstler carved for collector M. B. Mervis.

This million-dollar collection exists today because of one man's love for horses. M. B. (Mike) Mervis, a successful copper-and-steel executive who lived in Barrington, Illinois, until his death in 1959, began acquiring miniatures to help his children appreciate horses the way he did. His own passionate involvement with the animals started early; he grew up as the son of one of the largest dealers of coach and saddle horses in the nation.

Mervis' hobby soon became something of an obsession. He traveled all over the world looking for woodcarvers who could produce lifelike horse models. He was usually disappointed with the results. As he once wrote of a hundred people he had contacted: "Only three of these artists had any conception of the general

Photographs by Brian R. Wolff

Six brawny Clydesdales by Kinstler strain at the harness of famous Hawthorn-Mellody Farms Express Wagon owned by a large Illinois dairy firm. Peter Winton did the wagon; Charlie Dech carved figures.

makeup of the horse or could hold to the actual life characteristics or proportions of the animal."

Mervis' first success came one day around 1920 when he noticed a model of a Belgian horse in a Chicago pawnshop window. After a year-long search, he finally tracked down the carver, Peter Giba, a moody artist who lived in a basement studio in the city. Mervis' desire for perfection led to some stormy exchanges with the mercurial Giba, who often disappeared for days at a time. Before his death after a 20-year collaboration, however, Giba had carved no fewer than 400 horses for Mervis, many of which can now be seen in the Kentucky collection.

On a trip West, Mervis discovered a miniature statue of a fighting wild stallion which led him to his second artist, Vernon Vincent Haff. This Colorado-born wrangler lay dying in a Denver veterans' hospital, a victim of severe gassing in World War I. For the pleasure of his little son, he whittled from memory the Western horses he once knew so well. With Mervis' offer of an unlimited market for his work, Haff gained a new lease on life and rejoined his family for the remainder of his days. Before his death in 1949, he produced dozens of fine re-creations of the horse and its part in the winning of the American West.

A carving at Abercrombie & Fitch, the renowned sporting-goods store in New York City, put Mervis on the trail of his third artist, Calvin Roy Kinstler, a horse lover who lived in a small Maryland town. Kinstler had long suffered from arthritis, and only his deft fingers remained free from pain. From about the 1930s to the '50s, he carved many stunningly detailed pieces for Mervis. Among his finest works are the mahogany-colored replica of Citation, winner of the 1948 Kentucky Derby, and a rearing model of the Arabian Raffles, a famous breeding stallion. Perhaps Kinstler's most spectacular carving is his six-horse show hitch of champion Clydesdales (opposite), part of a nine-inch-high duplication of the celebrated Hawthorn-Mellody Farms Express Wagon. The wagon was owned by a dairy company in Illinois and displayed in horse shows throughout the country.

Yet another artist, Charlie Dech, often spent time at Oaks Farm, the Mervis country home in Barrington. There, he carved many of the vigorous and lively human figures that occupy the collection's coaches, rigs and wagons. Even more impressive than Dech's often witty carvings are the trappings and harnesses he fashioned for 70 rigs and hitches. All were made to scale using authentic materials, right down to the silver ornaments and gilt buckles.

A fifth wood-carver, and perhaps the most gifted of

Free-lance writer Grayce P. Northcross was a member of SMITHSONIAN*'s Board of Editors for 11 years.*

A century ago, people got about town in Clarence cabs. Candles bracketing the driver lit the way at night.

Horses hauled goods as well as people. Kinstler carved matched pair of Percherons pulling delivery wagon.

Warmed by lap furs, passengers enjoyed sleigh ride behind two statuesque Morgans created by Peter Giba.

Surrounded by harness maker's tools, a Lippizaner by Giba shows off its years of training for dressage.

Imported from Scotland, burly Clydesdale draft horse was employed here for farm and commercial work.

them all, read about the Mervis collection and wrote from England, offering to supply various equipages to be hitched to the horse models. This was Peter Winton, a retired coach maker for the Royal House of Windsor. Mervis' immediate answer was: "What do you have in the way of rigs?" A lively correspondence followed, leading to the acquisition of the most exquisite and accurate reproductions of coaches and carriages in the entire collection. Everything from the tiny coach lamps to the working doors and windows operates precisely, and the upholstery in the models is the same as that found in the life-size originals. Three of these carriages were so important to Mervis that he had a daughter who was traveling in Europe collect the models from Winton in person to prevent any possible damage in transit.

All of his artists were accomplished carvers, but Mervis knew his horses and insisted upon authenticity down to the last detail. Sometimes the demanding collector sent a carving back five or six times before he was happy with it. As many as four artists might work simultaneously on different parts of the same model and a single piece could take as long as five years to complete. "No one can imagine," Mervis once reflected with well-deserved pride, "what care was taken and the trouble and expense involved to produce the desired true model."

On cold winter nights, Mervis liked to gather his son and five daughters—and later his grandchildren—around the fireplace to study the different breeds of horses, their origins, their purposes for work and pleasure, and the roles they played in commerce and in transporting the settlers migrating West.

Mervis continued to acquire his beloved miniatures until the end of his life, but in 1961 his estate sold the collection to another horse lover, Ken Idle of Bellefontaine, Ohio. Nearly ten years later, Idle sold the collection to Sears, Roebuck and Co., which subsequently set up a handsome display in its Chicago tower. In 1978, most of the collection was donated to the Kentucky Horse Park, and the remaining 70 pieces arrived there in September of last year.

For Mervis, stabling the animals at the International Museum of the Horse would have been the realization of a dream. He had always hoped that someday his whole collection would help children of all ages learn about the horse and its relationship to Man. What could be a more appropriate setting than a genuine working horse farm in the heart of thoroughbred country? Here, the miniature collection has at last found a home where the hundreds of thousands who come to visit every year get a glimpse of the different world our forebears traveled not so very long ago.

Real Paso Fino gelding at Kentucky Horse Park puts Arabian mare and foal from collection in perspective.

By James A. Cox

The great fight: 'Mr. Jake' vs. John L. Sullivan

Bare knuckles were illegal in 1889, but they went 75 rounds that way, just the same, for the world heavyweight championship

At a few minutes past 4 P.M. on July 7, 1889, a special three-car train chugs out of the Queen and Crescent Yards in New Orleans. In theory, the time of departure is known only to a privileged few, among them Bud Renaud, New Orleans sportsman and fight promoter, Col. Charles W. Rich, Mississippi gambler and sawmill operator, and, of course, the parties of the principals—John L. Sullivan, the celebrated "Boston Strong Boy" and heavyweight champion of the world, and challenger Jake Kilrain.

The train's destination is supposed to be secret, too. New Orleans has been seething with rumors for days, and the governors of Louisiana, Alabama, Mississippi and Texas in concert have vowed that no barbaric bare-knuckles contest—illegal in all 38 states—will take place within the borders of their fair constituencies. In fact, Governor Lowry of Mississippi has put out what almost amounts to a contract on Sullivan. He is still burning over indignities suffered seven years before when John L., a brash boozy youth, ignored his prohibitions and stripped the title from Paddy Ryan after nine brutal rounds in full view of the verandah of the gracious Barnes Hotel in Mississippi City. With vengeful spirit but no legal justification, he has offered a flat $1,500 reward for the arrest of the champion.

Deep in the Mississippi woods, a crowd of 3,000 watch John L. (left) and Kilrain clinch in an early round.

For the fight Sullivan stood 5 feet, 10½ inches, weighed 207 pounds. His hair was often shaved to avoid head grabbing in the ring.

But now, somehow, the location of the fight site has leaked out: in Mississippi, somewhere in the 10,000-acre tract of pinelands surrounding Charlie Rich's place in Richburg, near Hattiesburg, about 100 miles north of New Orleans.

The telegraph chatters and Governor Lowry summons the militia to guard all the main roads and rail lines from Louisiana into Mississippi. In the Queen & Crescent rail yards, a mob scene takes place. Two cars of the special train are taken over by the fighters and their parties. A third car, the boxcar, separates them. A smiling Sullivan rides in the rear car with a handful of cronies, plus fighting gear—shoes, towels and sponges. In the front car with Kilrain are Richard K. Fox, publisher of the *National Police Gazette* of pink-sheet fame, Bat Masterson, former marshal of Dodge City, and various solemn-looking men who talk softly without moving their lips much. The crowd continues to gather, trying to clamber aboard. But before the militia catch them, the fighters' train pulls out, forcing its way through the crowds. Word spreads that the fight is scheduled now to start soon after dawn to avoid the heat. The operators of the Q&C, knowing a good thing when they see it, hastily assemble additional trains to accommodate the thousands left behind.

Two trains leave in the early morning, jammed so tight with gambling men, sports enthusiasts, pickpockets, armed thugs and opportunists—including Renaud, Charley Johnston, who was "a very important gentleman" from New York City, and Steve Brodie, still basking in the glory of his alleged leap off the Brooklyn Bridge—that a man can't reach for the pint flask in his own hip pocket without risk of starting a border war.

The ride, often through mist-shrouded swamps, is slow, with long delays, in sweltering boxes, over slippery tracks. There is some confusion as to what happens next. According to one version, when the trains reach the Mississippi state line, a company of Governor Lowry's militia is waiting, bayonets stacked in a barricade across the track. The fireman piles on the coal and the train barrels through, sending bayonets whizzing past the ears of the militiamen as they dive for the safety of trackside ditches. The other, more likely, version is that the railroad dispatcher reroutes the train along the ghost run through southwestern Mississippi—where gaunt cypress trees wade into dark grottoes, and frogs never hush—and then northeast to Hattiesburg.

Finally, at about 9 A.M., the engines wheeze to a stop at Charlie Rich's lumber camp. Carriages have been provided for the important people. Half of the rest scatter urgently into the underbrush, while the other half trail the carriages to a clearing in the woods where Charlie's crew has been working all night by the sputtering orange glare of pine-knot torches,

A recent sports story by the author (October 1982 issue) was on Mike Kelly of "Slide, Kelly, Slide!" fame.

RED STANDS OUT. BETWEEN FRIENDS.

YOU WILL ALWAYS BE DISTINGUISHED BY YOUR TASTE IN SCOTCH. AFTER ALL, IT'S THE WORLD'S BEST SELLER.
JOHNNIE WALKER® RED

BLENDED SCOTCH WHISKY, 86 8 PROOF IMPORTED BY SOMERSET IMPORTERS, LTD., NY., NY © 1984

SEND A GIFT OF JOHNNIE WALKER RED ANYWHERE IN THE USA. CALL 1-800-243-3787 VOID WHERE PROHIBITED.

erecting a ring, several tiers of wooden seats and spreading sawdust liberally on the ground.

While the fighters and their corner men are readying themselves for the upcoming fray (there'll be no steins of bourbon this time, John L., not with William Muldoon, a wrestling champion and physical-conditioning fanatic in charge of training), let's take a moment to look at the circumstances and personalities in the unfolding drama.

Richard Kyle Fox could have been a hero in the Horatio Alger stories. He arrived in New York City from Dublin in 1874, a penniless 29-year-old, got a job on a newspaper, saved his money and two years later purchased the *National Police Gazette*, a weekly heavy with scandal and sensation that had fallen on evil days. The first thing Fox did when he took over was to emblazon his name, "Richard K. Fox, Editor & Proprietor," on the masthead. The second thing was to add to the *Gazette*'s pink pages a sports section, a feature unheard of in newspapers of the time. Baseball and football were just getting started and the first ball hadn't been tossed through a peach basket yet. But there were many races and prizefights, the latter growing in public interest despite—or because of—the proscriptions against them.

To add to the excitement and at the same time boost the *Gazette*'s circulation, Fox promoted competitions of every kind imaginable, awarding "championship" belts, cups and trophies (which usually featured his mustachioed visage) with a lavish hand. There were contests for steeple climbing, oyster opening, hair cutting, one-legged dancing, sculling and female pugilism. There was a special trophy for one George A. Sampson, who supported a scale-model Ferris wheel on his chest; one for the bartender who could make a pousse-café with the most layers; and another one for poor Billy Wells, who balanced a block of iron on his head while somebody went at it with a sledge hammer.

The *Gazette*, avidly read by men and boys all over the country, soon became the sportsman's Bible. Its circulation zoomed and Richard K. Fox, now a dapper millionaire in his mid-30s, found himself the most influential figure in the sports world.

The "villain," dapper Richard K. Fox, published the pink *Police Gazette*.

Mustachioed Kilrain was 6 feet, 190 pounds, but in far worse shape.

One evening in the spring of 1881, Fox was sitting at his usual table in Harry Hill's Dance Hall and Boxing Emporium, located on the edge of New York's Bowery. Harry Hill's was known as "the best of the worst places," and everybody who was anybody made it a point to be seen there —Diamond Jim Brady, Lillian Russell, P. T. Barnum, James Gordon Bennett jr., Thomas A. Edison (ostensibly to see how his new light bulbs were working), even Oscar Wilde and the noted Brooklyn divine, Henry Ward Beecher.

The entertainment on this particular evening had been supplied by a muscular 22-year-old brawler from Boston named John Lawrence Sullivan. This was the same cocky young man who had been touring the vaudeville circuit, offering $50 to anyone who could last four rounds with him in "sparring exhibitions," so called in order to stay within the law. In fact, John L. would simply climb into the ring, glower at the audience and roar, "I can lick any sonovabitch in the house!"

The Boston Strong Boy knew little about ring science, but he carried 195 pounds of solid muscle on a 5-foot-10½-inch frame and packed a mighty wallop in either hand. "It was like being hit by a runaway horse," said Professor Mike Donovan, later to become famous as the sparring partner of Teddy Roosevelt. The professor was one of the few who managed to

"AT&T PRESENTS CARNEGIE HALL TONIGHT"

Juilliard String Quartet

This week and every week you can enjoy the excellence of Carnegie Hall on your radio.

In "AT&T Presents Carnegie Hall Tonight," some of the greatest soloists, ensembles, and orchestras of our time perform for you. Hosted by actor and composer John Rubinstein, this program hour also includes feature interviews, so you actually hear more than you would at a live performance.

This series is part of AT&T's continuing commitment to bring you great art and great artists.

AT&T

© AT&T 1984 Check local listings for the time and station in your area.

last for three rounds with Sullivan.

Now, at Harry Hill's place, John L. put away Steve Taylor, a good boxer with a local reputation, in the middle of the second round. Following his established pattern, he helped drag the fallen gladiator back to his corner, fussed over him until he came to and slipped him a couple of dollars for his trouble. Then, raising his arms for silence, he made a few remarks suitable to the occasion, ending up with the quaintly formal sign-off that was to become his trademark: "Always on the level, yours very truly, John L. Sullivan."

A short time later, back in his street clothes, he took over one of Harry Hill's tables and busied himself using the $50 he had kept from Steve Taylor to buy drinks for a crowd of friends and hangers-on.

"So that's Sullivan," said Richard K. Fox, seated a few tables away. He stroked his silky handlebar mustache with one beringed hand and raised a manicured finger on the other. "Tell Sullivan," he said to the waiter who materialized, "to come over here. I want to talk to him."

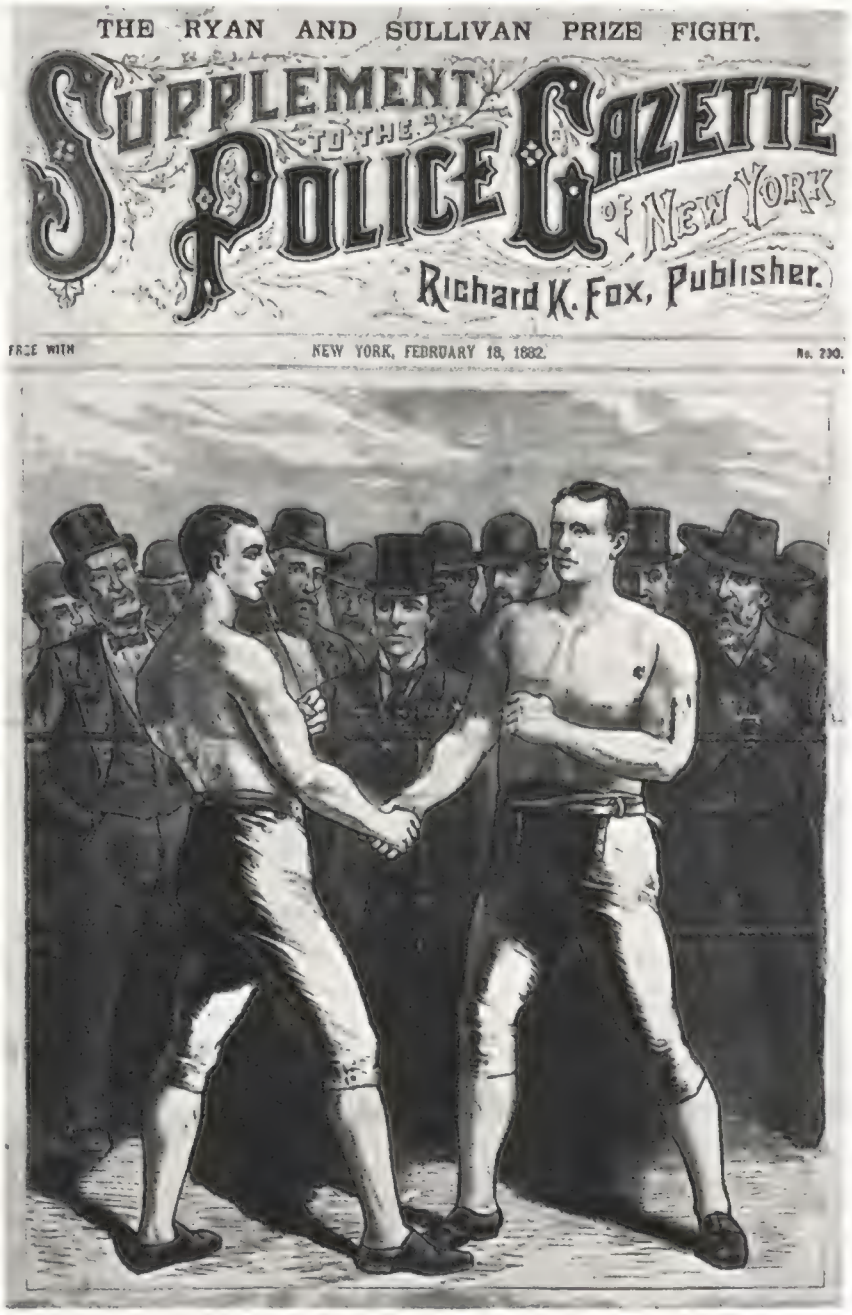
Surrounded by sycophants, pulling lustily on his stein of bourbon and very full of himself, John L. was in no mood to tug his forelock and play lackey to anyone. "You tell Fox," he bellowed, loud enough to be heard all over the room, "that if he wants to see me he can goddamn well come over to *my* table!"

No one had ever talked to the great Fox like that before. He never forgot it. And he never forgave it.

Time passed. The following February Sullivan took only ten minutes and 30 seconds to wrest the championship from Paddy Ryan, a husky immigrant bartender who enjoyed the support of Richard K. Fox. "When Sullivan struck me," Ryan confessed, "I thought a telegraph pole had been shoved against me endways." Game to the end, Paddy showed up at Sullivan's victory party at the St. James in New Orleans and, as John L. himself later put it, "partook of our festivities."

John L. Sullivan, champion of America, went on an eight-month tour across the country, now offering $1,000 to anyone who could stay four rounds with him, Marquis of Queensberry Rules. These rules, then coming into favor, were substantially the same as they are now: padded gloves, three-minute rounds with a one-minute recess, the count of ten for a knockout. In the old London Prize-Ring Rules, still in force when Sullivan began his career, the fighters fought bareknuckle or with skin-tight leather gloves. They wrestled, too, grabbing anywhere above the waist, which is why the old-time fighters shaved their heads. A round lasted until one fighter was knocked down by a punch, thrown by a wrestling hold or slipped. He then got a 30-second rest, after which "time" was called, giving him eight more seconds to come to the "scratch," a line marked in the middle of the ring. If he couldn't make it, he was declared "knocked out of time," which phrase was later shortened to "knocked out." There was no specified number of rounds—a bareknuckle fight was a fight to the finish.

Sullivan much preferred the Queensberry Rules. But he took on anybody, any time, any rules. In exhibitions and official bouts his first two years as champ, he knocked out 34 men, failing to deck only Tug Wilson—an experienced pugilist backed by Fox—who managed to last the required four rounds by run-


THE RYAN AND SULLIVAN PRIZE FIGHT.

SUPPLEMENT TO THE POLICE GAZETTE OF NEW YORK

Richard K. Fox, Publisher.

FREE WITH NEW YORK, FEBRUARY 18, 1882. No. 230.

The Great John L. (left) made the cover of Fox's paper after he beat Paddy Ryan (right) for the world heavyweight title in February 1882.

OPEN WIDE

AND SAY ENCORE

If you want European styling just say the word. Encore. An amazing perspective on hatchback design. The panoramic rear view lets you see and be seen in a new dimension. Ergonomic instrumentation provides a bank of driver data. Renault's unique pedestal seats offer an extra degree of style and rear legroom. The fold-down rear seat is designed to extend cargo space convenience. Encore's 4-wheel independent suspension with twin coaxial rear torsion bars and power front disc/rear drum brakes results in impressive performance and handling. Your choice of engines, including the optional new 1.7 litre, for increased performance. Electronic fuel injection produces fuel ratings that excel: **40** EST HWY, **34** EPA EST MPG.* The front wheel drive Encore. From Renault, Europe's leading car maker. *Built in America.* **$5959.**** The word is out: Amazing!

*Base model 1.4-litre engine. Use for comparison. Your mileage may vary with speed, trip length, weather. Actual highway figures lower. **List price. Tax, destination charges, rear deck spoiler $74, wheel covers $93, and regional equipment extra. All options not available on all models. **Buy or Lease. From American Motors.** **Safety Belts Save Lives.**

RENAULT

THE ONE TO WATCH

Window and Door Ideas
for Remodeling and Replacement

Send today for your free copy of the Pella Idea Book for Remodeling and Replacement. It's filled with ideas to make your home lighter, brighter, more energy efficient, and easier to care for. See everything Pella offers for older homes – Windows, Sliding Glass Doors, Traditional French Doors, Skylights, Sunrooms and Wood Folding Doors.

FREE BOOKLET!

Please send me a copy of the Pella Idea Book for Remodeling and Replacement.
I plan to
☐build ☐remodel ☐replace windows and doors

Telephone

Name

Address

City

State Zip

Mail to: Pella Windows and Doors
Dept. C16L4, 100 Main Street
Pella, Iowa 50219

Also available throughout Canada

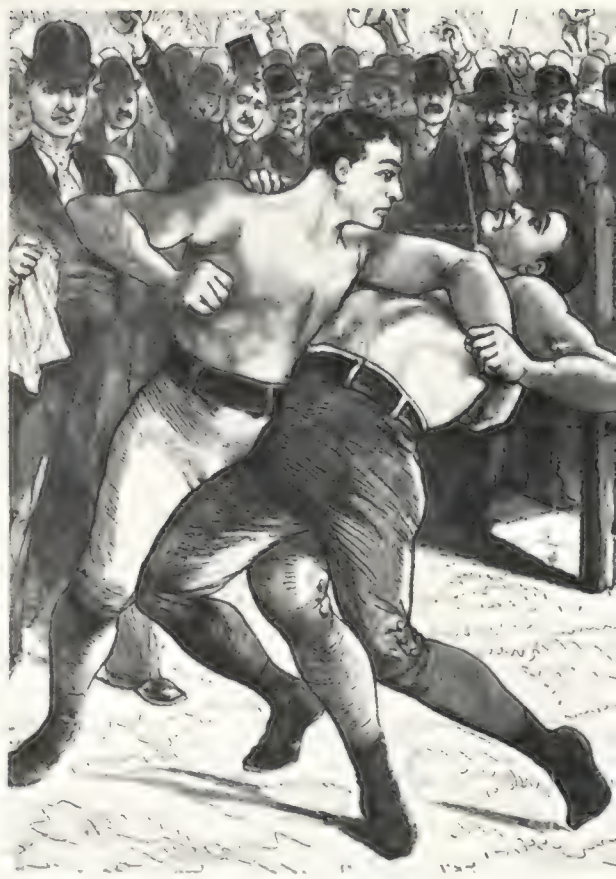
This coupon answered within 24 hours.

© 1984 Rolscreen Co

ning, clinching and slipping to the floor without being hit. In ensuing years hundreds more fell before the terrible power of Sullivan's fists, including a number of hopefuls handpicked by Fox in his vendetta to "get" Sullivan. By 1887, the Boston Strong Boy had grown into the Great John L., an international figure who shook the hands of princes and presidents and was lionized wherever he went.

Meantime, Fox had come up with a new pretender, a solid heavyweight born John Killion on Long Island, who fought under the name of Jake Kilrain. Jake had battled some of the best fighters around and had gone to a draw with Charlie Mitchell, the little Englishman who was growing into such a large thorn in John L.'s side. Somewhere along the line—the facts are unclear—Fox apparently goaded Sullivan into agreeing verbally to meet Kilrain for the championship. Later, John L. refused to acknowledge the agreement, if indeed there was one. Furious, Fox declared that Sullivan had forfeited the title. He announced that Jake Kilrain was champion of America, and awarded him a special diamond-studded silver *Police Gazette* championship belt (p. 162), then matched Jake with the British champion Jem Smith for the world title.

Sullivan's loyal Boston admirers were not going to sit still for that. A committee was set up (by Pat Sheedy, John L.'s manager, some cynics claim) and contributions were solicited for a tribute that would make Fox look like a piker. From the proceeds came "The $10,000 Belt." It was reported to be the largest piece of flat gold ever seen in the country, 50 inches long and 12 inches wide. The center panel spelled out John L.'s name in tiny diamonds; eight other panels carried his portraits, the U.S. Seal and assorted American eagles and Irish harps (p.162). To top everything off, the entire bauble was studded with still more diamonds, 397 of them in all.



The *Gazette* showed Sullivan putting Jake Kilrain in a wrestling hold.

The presentation of the belt at the old Boston Theater on August 8, 1887, was attended by 3,500 fans, among them the mayor of the city and other local politicians. It was there that Sullivan probably uttered one of his most memorable statements: "I wouldn't put Fox's belt around the neck of a goddamn dog!" The crowd loved it. Somebody passed the hat. John L. took home $4,000.

A victorious six-month tour of England and the Continent followed. But returning home in April 1888, he embarked on another long toot. And this time the high living—night after night on the town, huge steaks, magnums of champagne, steins of bourbon and big black cigars without number—began to take its toll. From 195 pounds, his best fighting weight, he ballooned to 240, all flab. Worse, the booze accomplished what no man had been able to do—put him down for the count. For nine weeks Sullivan took to his bed, as he later noted in his autobiography, with "typhoid fever, gastric fever, inflammation of the bowels, heart trouble, and liver

"This is a Magnavox?!"

This is a Magnavox, a Magnavox. Forgive the repetition, but as long as people have trouble associating a sleek, revolutionary Stereo Color TV with Magnavox, we can't be too careful.

Stereo TV is the biggest news since color TV. It's the sound of the future and it's right around the corner. Which is why your next TV ought to be the 19″ Magnavox Stereo Color TV. It's completely ready for stereo with a built-in decoder.

Along with our best 19″ picture (our high resolution filter sharpens detail as nothing else can), this Magnavox TV is equipped with a stereo amplifier, two woofers and tweeters. Everything it needs to deliver the sweeping grandeur of on-the-scene stereo sound.

In addition, the Magnavox Stereo TV receives 125 channels, including cable. Rear panel connections hook up to anything from cable broadcasts to video recorders, to video games and external speakers.

The 19″ Magnavox Stereo Color TV (along with 19 other stereo models) has all the makings of a complete home entertainment center. If you're big on entertainment, look for our whopping 25″ stereo models. You'll know they're Magnavox. You can't miss them.

MAGNAVOX

America's best kept secret.

Simulated TV Picture
© NAP Consumer Electronics Corp.
A North American Philips Company

complaint all combined," which seemed to some cynics a rather elaborate way of describing the D.T.'s. Five physicians tapped and dosed him, and he thought he was going to die. Even when he got up he had incipient paralysis, whatever that is, and went on crutches for six weeks. There also were rumors of a "mysterious itch."

Never would there be a better time to "get" the bloated Boston boaster, Richard Kyle Fox reasoned. In barber shops, saloons, livery stables, firehouses and police stations all over the country, *Gazette* readers were told that Sullivan was near death's door and would probably never be able to fight again; and, conversely, that he was using his sickness as an excuse for evading a fight with the "real champion," Jake Kilrain.

Week after week the refrain grew, and at last John L., who still had his pride if not his health, rose to the bait. In January he agreed to meet Kilrain in New Orleans in July—London Prize-Ring Rules, no gloves, at Fox's insistence—for a purse of $20,000, winner take all, with a side bet of $1,000.

Sullivan's backers quickly called in icy-eyed Billy Muldoon, a trainer who, for a fee of $10,000, agreed to put John L. back into fighting shape (fee forfeited if Kilrain won). With one ironclad proviso: Muldoon was to be absolute boss. Sullivan would follow the regimen set up for every minute of every hour, 24 hours a day, without question or temperamental display. It was agreed, and one of the backers, the tough, pistol-packing gambler out of Brooklyn named Charley Johnston, vowed that he would answer for John L. But first they had to find him, because he was off on another bender. Inside his lavishly appointed offices, with their Turkish carpets, plush chairs and inlaid mother-of-pearl tables, Fox learned of all this and contentedly stroked his mustache. Muldoon had six months to whip Sullivan into shape, but what good came of flogging a dead horse? Sullivan was finished, washed up. Physical conditioning was Muldoon's stock-in-trade, not making miracles.

Police Gazette belt, given to Kilrain by Fox, sported a raised silver flower, boxing figures and the donor's portrait in a top hat.

Six months passed and it is July 8, 1889. For weeks all across America, urchins and schoolboys, who are not the final arbiters in matters of sport, have been chanting a loyal battle cry: "Sull-i-van will KILLrain!"—and the *Gazette* be damned. But at ringside, where the sun is beating down mercilessly already, the smart-money men are worried. Can the Big Fellow still fight? And even if he can, how long can he possibly last? Kilrain isn't known as a slugger, but he's strong and he has great endurance. He's also a good wrestler, and in bareknuckle fighting a wrestling fall can be nearly as effective as a knockdown punch. "Sullivan is no wrestler," announces the New York *World* on the day of the fight, expressing the reservation that is in everybody's mind: "According to the history of all such drunkards as he, his legs ought to fail him after 20 minutes of fighting."

Ringside seats are snapped up at premium prices: 722 fans pay $15 each to perch on campstools, while 1,400 more part with a sawbuck for the privilege of standing behind them. There are grandstand seats ranging in price from 50 cents to $2, but the rowdy element in the crowd overruns them and the man who passes the hat doesn't get much. In all, more than 3,000 men and boys are in attendance. Ann Livingston, John L.'s beefy, bosomy, showgirl inamorata of many years, who sometimes went to his fights dressed in men's clothing, does not attend. But at least one woman does. She is a black lady named Aunt Mattie, who was elderly when she helped to raise Mississippi poet James H. Street in pre-Depression America, but is spry enough in 1889 to perch in the lower branches of an oak tree behind the grandstand.

It is Hades-hot. The sun is a burnished brass disk in the sky, the temperature at ringside 100 degrees F. And rising. It will be 110 degrees be-

Boston Strong Boy's gold belt, worth $10,000, was decorated with 397 diamonds, American eagles, Irish harps, four portraits of John L.

Cutty and the night before.

Some of the year's most important projects are put together with pliers and wrench on December 24th. Here's hoping someone helps you ease the struggle with the smooth, mellow taste of Cutty Sark.® A taste to savor. To send a gift of Cutty Sark anywhere in the U.S., call 1-800-BE-THERE. Void where prohibited.

Cutty Sark. You earned it.

In TRAVCOA's Orient, you will live with the Dyak villagers in Borneo, meet the Torajas of Sulawesi and see ancient Burmese culture at Pagan and Mandalay.

ORIENT & CHINA

Sail on Japan's Inland Sea and visit the hill tribes of Thailand. TRAVCOA offers a la carte dining, limited membership and luxury hotels, like the Peninsula in Hong Kong.

TRAVCOA visits all of China's wonderful cities. Explore the excavations of Xian, the gorges on the Yangtze River Cruise and beautiful Guilin.

For the unusual, visit Tibet, Mongolia and the Stone Forest & Kunming.

From the cultural treasures of Mexico City to the Mayan civilizations of the Yucatan, TRAVCOA offers a contrast of cultures and exotic cities.

UNIQUE MEXICO

Enjoy San Miguel Allende and Dolores Hidalgo, the Carnival celebration in Indian villages of Chiapas, festive celebrations in Patzcuaro and Holy Week in Taxco.

Explore the colonial villages of Queretaro, Guanajuato and Guadalajara, enjoy gala evenings in Acapulco, then see spectacular Mayan ruins at Palenque, Merida, Uxmal and Chichen Itza.

Escorted tours are limited to 25 persons, including a la carte dining and all luxury facilities.

Travcoa Dept. SM12

4000 MacArthur Blvd., Newport Beach, California 92660

Name _____

Address _____

City _____ State _____ Zip _____

Travel Agent _____

Please forward the following TRAVCOA brochures:

☐ Unique Mexico ☐ Orient ☐ Mongolia ☐ Middle East
☐ Around the World ☐ Antarctica ☐ India ☐ South Pacific
☐ China ☐ Egypt ☐ South America ☐ Africa ☐ Europe

fore the day is over. The crowd chews on rumors that the militia will show up at any moment. Newspapermen fume when they learn that most of their free seats have been sold by the managers, and that no special telegraphic facilities are furnished. The only wire, belonging to the railroad company, is taken up by railroad business. It is said that there is a rush for carrier pigeons, but none can be found. The reporters must go back to New Orleans to reach a telegraph station.

Shortly before 10 A.M., Jake Kilrain, his corner men Charlie Mitchell and Mike Donovan, and his timekeeper, Bat Masterson, push through the crowd to the ring. Jake tosses his hat over the ropes and follows it in, shouting in the prize ring's time-honored gesture of defiance, "Me hat's in the ring!" He looks New York pale but fit. His face, though, has a sour cast this morning, and the sweat that beads out over his body may not be entirely from the temperature and humidity.

Moments later, the champion strides down to the ring. He is wearing a long robe, and when he shrugs it off the ringsiders inhale appreciatively. Not for the emerald-green tights, flesh-colored stockings and glossy-black high-topped boots, as resplendent as they are, but for the miracle that William Muldoon has wrought. For there before them stands the Big Fellow of legend, down to 207 pounds and, except for a slight bulge that girdles his midriff, looking surprisingly fit.

In the ring, the fighters shake hands and each gives $1,000 in cash—the side bet—to the referee, John Fitzpatrick, who soon after will be elected mayor of New Orleans. Their boots are fitted with metal spikes to prevent them from slipping on the earthen floor of the ring. Then their seconds also shake hands, as is the custom, and return to their corners.

At 10:15, Fitzpatrick hollers "Time!" The two adversaries advance to the mark. They circle for an instant. Then Kilrain rushes in, grabs Sullivan by the shoulders and backheels him to the ground. The ringsiders cheer excitedly. First fall to Kilrain. Money changes hands. The round has lasted exactly five seconds.

Anxious Sullivan posed during brief stint as a ghost-written columnist.

The second round is Sullivan's. He lands a heavy blow on Jake's ribs and throws him. Thirty seconds. They clinch in the third round and Kilrain lands several foul blows. The crowd hisses. Sullivan pulls away and sends Kilrain tumbling with a right to the heart followed by a left to the head.

By the fourth round the strategy of the Kilrain corner becomes clear. Jake refuses to swap punches with Sullivan head on, instead jabbing and backing away until he sees an opportunity to clinch and throw his opponent to the ground. This is Charlie Mitchell's style—wear your opponent down. Charlie also maintains a steady stream of foul abuse from the corner, trying to goad John L. into blind anger. He seems to be succeeding. The round is approaching 15 minutes when the frustrated Sullivan lowers his fists and gasps, "Why don't you stand and fight like

Our best customers don't pay their car repair bills.

You won't either, if you're covered by Ford's new Extended Service Plan. It protects you against the high cost of repair bills for up to five years or 60,000 miles.

When you buy ESP protection on any new Mercury, Lincoln, Merkur, Ford car or light truck, thousands of parts (including major repairs) are covered. Labor charges too.

And it doesn't matter how many times you use ESP, you're protected. And ESP goes where you go.

Your ESP coverage is honored at over 6,100 Ford and Lincoln-Mercury dealers across the U.S. and Canada.

There are three Extended Service Plans to choose from. You can choose one that requires a small deductible, or one that doesn't. You can even choose one that includes scheduled maintenance.

You decide what's best for you. After all, ESP is the only plan backed by Ford Motor Company. Just call 1-800-FORD-ESP and find out which one is right for you.

Ford Extended Service Plan

WONDERS of the UNIVERSE
1985
CALENDAR

TRAVEL ON A 12-MONTH JOURNEY OF REMARKABLE BEAUTY.

Featuring colorful deep-space photography from NASA and the great observatories worldwide, this high-quality calendar is a superb gift idea. It folds out to a big 11 x 22 inches and has ample space for writing notes. Important sky happenings and historic moments in space exploration highlight the days of the year. Special notes on observing Halley's Comet!

One calendar–$7.95 ppd. Order two or more–$6.95 ea. ppd
(Foreign airmail postage–$5 for one. Each additional–$1.)

Please send me_____calendars for $_____postpaid

Order now and receive a FREE Chart of the Heavens and set of astronomical catalogs with your order!

Name _____

Street _____

City _____

State _____ Zip _____

☐ MasterCard ☐ Visa
☐ Money Order ☐ Check

CREDIT CARD HOLDERS CAN ORDER TOLL-FREE 1-800-321-2369.

Expiration Date _____

Card No _____

HANSEN PLANETARIUM
Dept. SM-24 15 South State Street
Salt Lake City, Utah 84111 (801) 535-7317

AUDIO-FORUM® offers the best in self-instructional foreign language courses using audio cassettes — featuring those used to train U.S. State Dept. personnel in Spanish, French, German, Portuguese, Japanese, Greek, Hebrew, Arabic, Chinese, Swahili, and more.

Learn a foreign language on your own! Free Catalog

Call (203) 453-9794, or fill out and send this ad to –

Audio-Forum
Room 931, On-the-Green
Guilford, CT 06437

Name _____

Address _____

City _____

State/Zip _____

I am particularly interested in (check choice):
☐ Spanish ☐ French ☐ German ☐ Polish
☐ Greek ☐ Russian ☐ Vietnamese
☐ Bulgarian ☐ Turkish ☐ Hausa
☐ Other _____

a man, you sonovabitch? Are you a fighter or a sprinter?"

Jake laughs, tauntingly.

In the seventh, Kilrain suddenly comes out of his shell and lands a vicious right on John L.'s ear, tearing it open. "First blood, Kilrain!" the referee cries out and a lot more money changes hands.

This is the last time Jake's supporters have much to cheer about. By the tenth round, Kilrain stumbles backward until Sullivan catches up with him, then falls to the ground without being hit to gain the automatic 38-second respite. Sullivan is enraged, the more so a round or two later when Jake steps on his foot, piercing it with one of his shoe spikes and drawing blood.

As the fight wears on, it becomes apparent that it is Kilrain, not Sullivan, who is wilting under the terrible heat. The steep wooden grandstands cut off any movement of air; the ring becomes a sun-scorched inferno. Men keel over like ninepins. The fighters continue their grotesque dance, one backpedaling, the other advancing and swinging ponderous blows. Their backs and shoulders are blistered crimson by the sun; blood, most of it Kilrain's, streaks their bodies. Sullivan's fists are beginning to swell.

Kilrain's seconds have a quart of whiskey and he takes sips and nips to keep his strength up. Sullivan is drinking tea. He refuses even to sit during the 38-second breaks. "What the hell is the use?" he asks his anxious seconds. "I just have to get back up again, don't I?" Muldoon asks him how long he thinks he can stay. "Till tomorrow morning, if it's necessary," Sullivan snarls.

In the 44th round, somebody—possibly even Muldoon—spikes the champion's tea with whiskey. John L. takes a huge gulp, goes out to toe the mark and gets sick. Instead of lacing into him, Jake asks if he wants to call it a draw. John L., still vomiting, responds by knocking him down. A wag at ringside starts a witticism that whirlwinds throughout the crowd: John L.'s stomach is getting rid of the tea but hanging on for dear life to the whiskey.

Kilrain's seconds carry him to his corner after every round now, and as he comes back out to the mark his head rolls loosely on his shoulders as if his neck has been broken. Charley Johnston offers $500 to $50 at ringside, with no takers. After the 75th round a physician from the New York Athletic Club pulls Mike Donovan aside and says, "Your fighter will die if you keep sending him out there. Think of the heat, man!"

At the same time, Mitchell sends a message to Sullivan's corner: if Kilrain retires, will Big John give him $2,000? His object apparently is to show that Sullivan is as eager to stop the fight as Kilrain. But before a deal can be struck, Donovan, who has seen two men die in the ring, throws in the sponge. Mitchell raves and Kilrain blubbers like a babe. Without waiting for congratulations, Sullivan bounds across the ring and challenges Charlie Mitchell to climb in and have it out to a finish right then and there. Charlie is more than willing, and it takes a half-dozen stout men to keep them apart.

So, after two hours, 16 minutes and 25 seconds, the last bareknuckle championship bout in history goes into the record books. A wad of $100 bills is counted out into John L.'s hands, swollen to three times their normal size, and somebody remembers to pass him the *Police Gazette* belt. The story goes around that he tossed it to Charley Johnston "for his bulldog." If so, he may have lived to regret the gesture, for in later, leaner days he will pawn his own belt for $175—after the diamonds have been pried out.

The country's newspapers carried the story the next day. The headline writers for the *New York Times* waxed smugly righteous: "The Bigger Brute Won." Literally accurate, but not in fact very significant. Jake

© Eastman Kodak Company, 1984

'Tis the Season to be Jolly.

You'd better not pout. You'd better not cry. Because Kodacolor VR films can turn even touching little moments like these into merry Christmas memories. They're the sharpest, brightest, most dazzling color print films Kodak has ever made. For Christmas magic that lasts all year long.

Because time goes by.

ALASKA

ANOTHER WORLD

Fly with us from Anchorage in our DC-3 "CLUB CAR". An extraordinary 6 day photo & fishing expedition. You'll go where only the adventurous have been. Photograph areas few have seen. Fish lakes once reserved for explorers. Come to where time stands still. See an Alaska only the privileged see.

$3,195.00 FROM ANCHORAGE
INCLUDES EVERYTHING
LIMIT 14 PERSONS PER TRIP
RESERVE NOW FOR EXPEDITIONS
BEGINNING APRIL 28, 1985

COMPLETE INFORMATION PACKET-SEND $10.00
($10.00 APPLIED TO FLIGHT)

ALASKAN AIRBORNE EXPEDITIONS
RT. 2, BOX 1620, SOLDOTNA, AK 99669 • (907) 262-4245

SOLID BRASS
THE WALL SWINGER

$19.99
Add $3 Shpg. ea.

Factory to you . . . we make the world's greatest values!

3-way light

An essential addition for any room in your home. This functional and versatile lamp extends two feet and comes complete with 11½" dia. textured white shade. Your choice of polished brass or mellow antique finish (please specify). *Satisfaction a promise.* Mastercard or VISA accepted. Order #90.

Nothing else looks like hand polished solid brass!

with luxe cord cover

ROBELIER
1500 South 50th St
Phila., Pa. 19143
Dept. ST 12-4

Quantity	Finish	Price Each	Total
#90		$19.99	
☐ Mastercard	PA res. 6% tax		
☐ Visa	shipping ea.	$3.00	
☐ Check		TOTAL	

_____

Signature _____ Ex. date _____

Name _____

Address _____

City _____ State _____ Zip _____

weighed 190 pounds to John L.'s 207. Years later, poet James Street preferred Aunt Mattie's version of the fight, recited to him when he was a boy on her knee, calling it the best piece of sports reporting he had ever heard. "They knocked each other down so many times I quit countin' them," she said. "Mr. John started a-sweatin' about the second round. He grunted and snorted a heap. Mr. Jake danced like a bridegroom at his weddin' dinner. Finally Mr. John hit Mr. Jake so hard Mr. Jake just didn't get up and that's all it was to it."

Well, not quite. Mr. John was tried by the State of Mississippi, convicted and sentenced to a year in jail. His lawyers appealed and at the retrial agreed to plead guilty in return for a $500 fine. Sullivan paid the fine and hotfooted it back to New York and a monumental celebratory binge. Jake Kilrain, cast aside by Richard K. Fox and broke, was paroled under a quaint old Mississippi law to work off his fine to a respectable private citizen of the state—in this case Charlie Rich, who kept him busy shooting pool in a place he owned in Hattiesburg. Jake, incidentally, so near death's door after the fight, managed to live long enough to serve as a pallbearer at John L.'s funeral in 1918. He didn't get counted out himself until 1937, when he was 78.

Sitting pretty in his sunset years, John L. Sullivan and colleague find themselves surrounded by congenial "Florodora girls."

A company that can guide home the Space Shuttle has to have a good sense of direction.

With each flight, the Space Shuttle again proves itself a commercial success.

And with every landing, a triumph of technology.

But what if bad weather prevents a Shuttle landing in California, New Mexico or Florida? Where does it go instead?

Now the Shuttle has a back-up landing site in Senegal, on the west coast of Africa.

And guiding it down will be a navigational ground beacon called TACAN, invented and built by the people of ITT.

This TACAN station provides distance and directional information the Space Shuttle crew needs to come home.

Fact is, we've installed an identical TACAN station at the Kennedy Space Center and similar ones at 2000 locations around the world.

Every day these stations provide navigation information for military and civilian planes from the United States and most of the free world.

And soon, the entire U.S. air navigation network will have the newest ITT beacons.

When it comes to high-tech aircraft navigation and avionics, ITT is still showing the way.

The best ideas are the ideas that help people. ITT

© 1984 ITT Corporation, 320 Park Avenue, New York, NY 10022

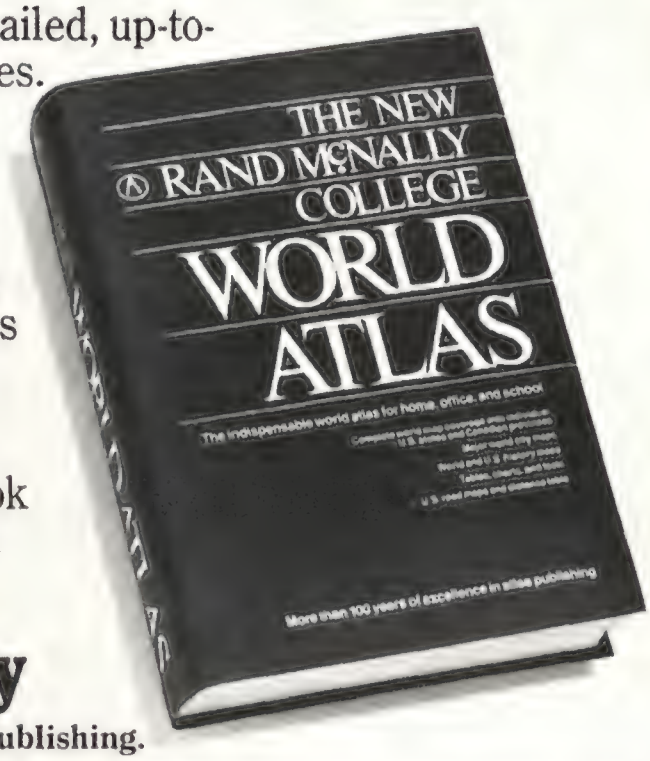
WHO NEEDS A WORLD ATLAS?

Students do. Business people do. Everyone who's interested in the world at large does.

Next to a dictionary, the new desk-sized Rand McNally College World Atlas is the most valuable reference book anyone can own. And a perfect gift.

Students appreciate its detailed, up-to-date maps and easy-to-use tables. Business people can use its air distance charts, information on trade exhibition facilities and hotel, motel and restaurant listings to save time and money. And anyone curious about the world will enjoy its 200,000 interesting facts.

And at just $15.95, it's gift-priced to please any giver. Look for it wherever books are sold.



Rand McNally

Over 100 years of excellence in atlas publishing.

THE MOST JAGUAR FOR YOUR MONEY

The 1937 Jaguar SS100 is a British racing legend. And extremely difficult to find today.

This highly detailed 1/18 scale replica is authentic right down to the knock-off hubs and soft rubber tires. Remove the hood strap, open the hinged hood, and observe the highly detailed, 3485cc engine. You will see why this was the fastest sports car of its time. Triple laced wire wheels are completely removeable. Functional steering system allows for easy turning on your desk. Beautiful charcoal silver finish. Comes completely assembled.

Extra hard diecast metal body will last a lifetime. Hand assembled in Italy.

9½" long. Weighs 1½ lbs. One year warranty and our 30 day home trial included. Now park this famous British classic on your desk for less than a tank of gas.

ORDER TOLL FREE

Credit Card holders may call our toll free lines. Order J37 for the 1937 Jaguar. Or send a check for $29 plus 3.50 delivery. (Order two for $49 plus 4.50 delivery.)

800 443-0100 EXT. 244

Canadian/Overseas (714) 551-1733

EXETERS®

7 Westport • Irvine, CA 92714 • Dept. 12M

Call Toll Free for our catalog of unique products.

© EXETERS 1984

Book reviews

Copland: 1900 Through 1942
Aaron Copland and Vivian Perlis
St. Martin's/Marek, $24.95

Aaron Copland's public debut was not as a pianist, a role in which he made his first appearance in his 17th year playing *Polonaise in B* by Paderewski. Rather, by Copland's own admission, he sometimes recited poems, "particularly one that was called 'How Would You Like To Be A Dog?'" Somehow that seems an encouraging beginning for the man who is widely regarded today as the dean of American composers and the most influential of those composers in this century.

As well known as are some aspects of his career—as a composer, at one time as a student of the now nearly legendary Nadia Boulanger, as pianist, as author, and in his later years as conductor—it is exciting to read his own recollections of his long life in the book which he and Vivian Perlis have coauthored.

Throughout most of his life, which began 84 years ago, on November 14, 1900, Copland kept a diary, programs, magazine articles, newspaper reviews, records of his financial situation (which was for many years a perilous affair) and voluminous correspondence. "I never threw anything away," he says.

Now that his achievements have placed him securely in the highest regard of this country's music lovers, as well as musicians around the world, it is especially satisfying to be able to read his own account of how it all happened. During the course of one of the observances of his 80th birthday in Washington, D.C.—once the prolonged applause finally died down enough for him to speak—Copland began

by saying, "Thank you all very much. You know, it has not always been like this."

The name of Vivian Perlis as coauthor of the new biography marks the collaboration of the director of the American music division of Yale University's oral-history project. This gives to the book, along with Copland's own comments and observations and recollections, the tributes and memories of more than 50 of Copland's close associates and colleagues. These include reminiscences from Boulanger, Agnes de Mille, Paul Bowles and dozens more; among them are three musicians whose contributions to the musical life of this country paralleled Copland's: Leonard Bernstein, William Schuman and Virgil Thomson.

In addition to these, Perlis has interspersed through the course of the biography four interludes in which she keeps the reader in touch with the developments that were taking place in the musical world during the periods under discussion. The result is a clear, highly personal and remarkably lucid account of what is really the story of the coming of age of this country's musical stature. For, as William Schuman points out in his interview, "We have had the satisfaction in our lifetimes [Schuman is ten years younger] of seeing this country change from one that imported virtually all its performing artists and exported all its students, to one that exports the greatest performers all over the world and imports students to study here."

It was not, as Copland remarked, always that way. But it is reassuring, in view of the oft-repeated assertion that Europe for many years knew no American music

Aaron Copland's reminiscences trace the development of America's music.

SHOW YOUR KIDS
HOW 2x4s ARE MADE.

Turning a two ton hunk of Douglas fir into over 300 board feet of 2x4 s is a sight to behold, and your family is hereby invited to behold it.

We'd like to give you all a comprehensive tour of one of our lumber mills or plywood plants—from debarking to computerized laser sawing to waste processing to a Q&A session with a mill superintendent.

We offer you tours like this because we want you to understand that our mills and plants and logging sites serve your interests as well as ours.

And because we're proud of them.

For a list of tour locations, write Sharon Ramsey, Boise Cascade Corporation, One Jefferson Square, Boise, Idaho 83728.

Boise Cascade Corporation

Paper/Office Products/Packaging/Building Products/Forests

except jazz and George Gershwin, to read Copland saying, after a 1929 concert in the Salle Chopin in Paris, "Far more important than individual reactions was the recognition by French critics and an international audience that America had composers ready to be heard in Paris, the artistic capital of the world." The music included works by Thomson, Roy Harris and Copland, among others.

Among the myriad invaluable assets of this long look at Aaron Copland are the reminders of his constant encouragement of younger composers, his participation in concerts designed to further the public acquaintance with new music in such ventures as the Copland-Sessions Concerts, the Yaddo festivals, his lectures at various institutions and his distinguished books. His *What To Listen For In Music* remains today the best book of its kind for introducing interested laymen to the world of music. It is refreshing to remember the publication of new music in the Cos Cob editions—where else would I have ever been able to learn the songs of Charles Ives back there in the '30s?

It is at times disheartening to realize how many of the things that were said about new music 50 years ago are still being said about today's new music. But it is highly bracing to realize that, even if it takes time, eventually the genius of an Aaron Copland is recognized by the widest public. And it is wonderful to realize that this volume will be followed before too long by a volume that takes us from 1942 up to the present. William Schuman says it best in the last sentence of his tribute: "If Aaron can say, as he has, that music is 'one of the glories of mankind,' then we can say, and we do, that Aaron is one of the glories of music."

Paul Hume
Emeritus music editor, *Washington Post*

"The Good War": An Oral History of World War Two
Studs Terkel
Pantheon, $19.95

This is the fourth in a series of popular and critically successful oral histories—following *Division Street America: Hard Times* (about the Great Depression) and *Working*—compiled by the well-known radio and television interviewer whose congenial, casual manner belies his impressive skills as a social historian.

Terkel's new book presents the overlapping, interweaving voices of more than a hundred men and women who recall their experiences of the global conflict that now seems irretrievably remote from most Americans' memories. "As I look back, it was a war that had to be fought . . . probably the last one," says a former Marine. It was, in another veteran's words, "the last time that most Americans thought they were innocent and good, without qualifications."

The character of this forgotten period is reconstructed for us through the personal stories of foot soldiers and bomber pilots, survivors of the London blitz and the sieges of various European and Russian cities, those who worked for government agencies or postwar relief organizations, those who "served" on the home front, and those whose countries endured defeat, foreign occupation or—after the war's dreadful double climax at Hiroshima and Nagasaki—virtual devastation.

We get cruelly vivid glimpses of battle-

TRINIDAD&TOBAGO Discover a world the world hasn't discovered.

In Trinidad & Tobago, you can have a bird in the hand, two in the bush, and a Picoplat in a zaboca pear tree. Not to mention over 400 other bird species that are yours for the watching in our lush tropical sanctuaries.

Our Caroni Bird Sanctuary boasts 150 species of bird. You'll see the legendary Scarlet Ibis fly in at dusk to roost in this vast area of mangrove and marshland. And our Asa Wright Nature Centre hosts the world's most accessible colony of Oilbirds—the only nocturnal fruit-eating bird in the world. Tobago shelters 106 bird species, including the only nesting colony of the Frigate Bird in the Southern Caribbean. The Tropic Bird, Noddy and Booby terns are indigenous to Tobago's Bird of Paradise Island.

If you're a butterfly lover, there are 622 spectacular species to be seen here. And if plants are your fancy, the Botanic Gardens in Trinidad & Tobago offer two charming wonderlands of tropical and subtropical plants. You can wander down our many nature trails, guided by a local nature society.

Venture out in a glass-bottomed boat to our famous Buccoo Reef, a natural aquarium of tropical fish and breathtaking coral gardens. You may even follow in the footsteps of Friedrich Guppy, who first identified and named the common guppy right here in Trinidad & Tobago.

So come and discover the nature of Trinidad & Tobago—a world the world hasn't discovered.

Fly BWIA International

TRINIDAD&TOBAGO

Come discover a world the world hasn't discovered.

"We manufacture quality down products at the lowest factory direct prices." Terry C. Gillette, President, C.E.O. The Company Store

"We are extremely proud to present the world's finest down products, factory direct to you. We manufacture the items pictured here, and in our 40 page Fall, 1984 catalog, that includes 14 down comforter designs, 58 premier quality down products and many bedroom accessories. By selling directly to you, we eliminate the middleman and retail markup, saving you 50% and more off normal retail.

Our down comforters and other quality down products are hand sewn, using only the finest European down fill. There are two ways to construct a down comforter: the rest of the world's way— and The Company Store way. Impersonal automation vs. meticulous hand-guided stitching and quality craftsmanship. A dedication practiced by our skilled seamstresses in La Crosse, Wisconsin since 1911. A tradition that recognizes making a product to last for generations."

European Hi-Loft Down Comforter

	Down Fill	Normal Retail	OUR PRICE
Twin (60" x 86")	30 oz.	$220	$115
Queen/Full (86" x 86")	38 oz.	$270	$145
King (102" x 86")	44 oz.	$320	$175

Colors: White, Dusty Rose or Peach

OUR GUARANTEE: *It's simple. If, for any reason at all you are not completely satisfied, please return for a full refund.*

Soft Down Pillows

	Normal Retail	OUR PRICE
Standard (20" x 26")	$90	$35
Queen (20" x 30")	$110	$45
King (20" x 36")	$125	$55
Baby/Boudoir (12" x 16")	$40	$25
Neckroll (6" x 14")	$40	$25
Bolster (8" x 20")	$90	$45

Colors: Lt. Blue, Beige, Dusty Rose, White

Bavarian Down Comforter

	Down Fill	Normal Retail	OUR PRICE
Twin (60" x 86")	30 oz.	$190	$109
Queen/Full (86" x 86")	38 oz.	$240	$139
King (102" x 86")	44 oz.	$310	$169

Colors: White, Lt. Blue, Beige, Dusty Rose, Peach

Merino Wool Mattress Pad

Soft Merino Wool cushions and cradles your body for a deeper, more restful night's sleep. It can be machine washed and retain its original softness, resiliency and durability.

Color: Natural

	Normal Retail	OUR PRICE
Crib (28" x 52")	$79.95	$39
Twin (39" x 75")	$119.95	$69
Full (54" x 75")	$149.95	$89
Queen (60" x 80")	$199.95	$109
King (76" x 80")	$229.95	$139

Available in time for the holidays. Delivery: Immediate. For faster service call toll-free: 1-800-356-9367 ext. R672

America's Down Factory Outlet

The Company Store™

Call toll-free 1-800-356-9367, ext. R672, or write for your free catalog which includes 14 down comforter designs, premier quality down products and other bedroom accessories from America's Sleep Professionals.

Date ordered _____ ☐ Payment enclosed (check or money order).

We accept ☐MasterCard ☐VISA ☐American Express

Acct. No. _____ Exp. Date_____

Name _____

Address _____

Phone during the day (_____)_____

ITEM	COLOR	SIZE	QTY	PRICE(ea.)	TOTAL

	Subtotal =	
☐ *We ship UPS ground service unless you request otherwise here. UPS 2nd day air add $8.50 to your order.	*Shipping and Handling* Pillows-$2.50 ea. =	
	Other Items -$5.00 ea. =	
	*UPS 2nd Day Air =	
	TOTAL =	

Send to:
The Company Store, Dept. R672, 1205 S. 7th St., La Crosse, WI 54601.

Who helps bird-watchers work on their orthography?

How can you spot a whippoorwill when you don't know whether it has one p or two? Well, that's where orthography comes in. It's the art of writing words with the proper letters according to standard usage.

Webster's Ninth New Collegiate Dictionary, just published, can help. This new edition of America's best-selling dictionary has almost 160,000 entries including thousands of new ones, all defined clearly, concisely, and accurately. And at many of those problem words, you'll find authoritative essays on contemporary usage.

Webster's Ninth New Collegiate Dictionary. It's the one to turn to when you want to know about the language.

Take our word for it.

MERRIAM-WEBSTER®
More people take our word for it.

© MERRIAM-WEBSTER 1983

The Executive Pacifier

A Perfect Paperweight for the Professional!
Silverplated.
Length 3⅜". Height 2". $35.00.
N.Y. & Ca. residents please add applicable tax.
Toll Free: 1-800-453-4808
Utah residents only: 1-800-662-8666
Visa & MasterCard Accepted.
Mail: Wedgwood, Dept SMP, 41 Madison Avenue, N.Y., N.Y. 10010

Wedgwood

"Wedgwood" is a registered trademark of Wedgwood plc England

field scenes, enlivened by odd details like the image of "a French peasant leading a cow [away from mortar fire], cradling its head in his arms, protecting it with his body as much as possible." We hear from scientists who worked day and night to produce an atomic bomb ("We believed Hitler was well ahead of us") and from today's children who doubt they'll live to grow up in this world the bomb has made.

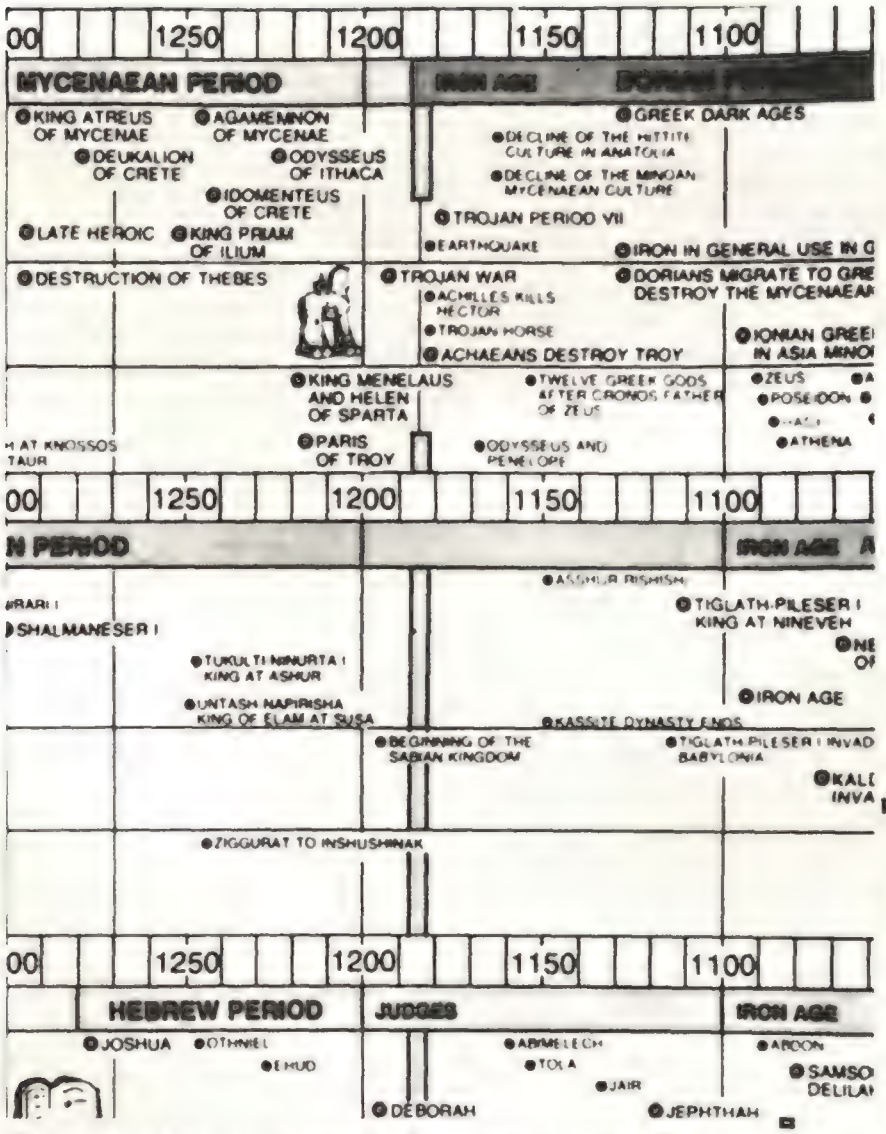
Economist John Kenneth Galbraith describes the administration of wartime price controls and rationing. Cartoonist Bill Mauldin reminisces about his most famous creations, the beloved "dogfaces" Willie and Joe, and imagines what their lives might have been in peacetime. Telford Taylor, who was chief American prosecutor at 12 of the 13 Nuremberg war-crimes trials, dismisses the characterization of the Nazis as "abnormal sadists," insisting "most of them are very ordinary people just like you and me."

Such ordinary people are the sources of some extraordinary stories. A Liberian-German black recalls his disappointment at being rejected by the Hitler Youth. A member of the National Association of Atomic Veterans offers stark evidence of the long-range effects of exposure to radiation, and a Frenchman, formerly a parish priest, depicts life in a forced-labor camp with unforgettable eloquence and bitterness. Japanese-Americans who lived in California reveal that they were incarcerated in "horse stables" at the Santa Anita racecourse. And—in a moving double interview that's perhaps the best thing in the book—a critical naval encounter is remembered, together, by a survivor of a German U-boat and a veteran of the U.S. ship that sank it.

The contents are organized roughly chronologically, from America's entry into the war to V-E Day and beyond, yet there is unavoidable repetition and a presumably deliberate recurring focus on several particulars that gradually become themes: how people learned of Japan's attack on Pearl Harbor; first experiences in battle and first encounters with the dead or wounded or dying; how combat personnel reacted to the news of Hiroshima; how World War Two vets saw the later war in Vietnam and their opinions of those who refused to serve there; what this earlier war's survivors fear a future war may bring.

Many of these speakers concede that

History comes alive. On The History Chart.



The history shown in this block is all contained in the small square indicated on the chart above.

The chart is produced in full color.

If you think history is just a collection of dry facts, you should send for The History Chart today. Because The History Chart (34 inches high and 8 feet long!) is a fascinating 6000 year chronology of the world's people and events to the present day. To understand the wealth of information contained in the Chart, the history of the United States is only 2 inches old over 8 feet of time.

Just ask yourself the following questions. Who came first, the Romans or the Vikings? Did the Babylonian Captivity of the Jews pre-date the Athenian Republic? Who brought the Greek gods to Egypt?

If you don't know (or even if you do), you'll find that The History Chart is a uniquely enriching educational experience for everyone. The History Chart has been on display in the Library of Congress.

There's no better way to see the panorama of human history, archaeology, theology and mythology than The History Chart. It even includes suggestions for further reading.

So fill out the coupon (or write on a separate piece of paper) and send it with your check or money order for $19.95 (plus $5.00 for shipping and handling) today. You'll soon be enjoying history as you never have before.

Please send me The History Chart. Enclosed is my check or money order for $24.95 (which includes $5.00 for shipping and handling). Add $15 for laminated Chart.

Name _____

Address _____

City/State/Zip _____

Mail to: International Timeline
2565 Chain Bridge Road
Vienna, Virginia 22180

Virginia residents add 4% sales tax. Please allow 4-6 weeks for delivery.

S-1

the horror and danger were, paradoxically, mixed with exhilaration ("there was excitement in the air"); many others caution that our willingness to use military power is based on this country's ignorance of invasion and its consequences ("Americans have never really known what war is"). Through all their stories runs the common thread that even this "good" war—when the enemy was clearly identifiable and our allies were firmly united and mutually committed—was a hell which consumed societies and families. And individuals.

Bruce Allen
Literary critic

The Limits of Science
P. B. Medawar
Harper & Row, $11.95

In this gracefully written and intellectually elegant little book, British Nobel laureate P. B. Medawar offers a great many insights into the nature and progress of scientific understanding and knowledge. He is correct when he asserts, "In terms of the fulfillment of declared intentions, science is incomparably the most successful enterprise human beings have ever engaged upon."

Medawar debunks the naive notion that there is such a thing as "the" scientific method which scientists use as a sort of "calculus of discovery" to guide their efforts in probing the secrets of nature. Instead, he cogently propounds the idea that the process of scientific discovery is actually very akin to the imaginative and creative endeavors of poets and artists. In Medawar's view, the scientific hypothesis is "always an imaginative preconception of what the truth might be." Consequently, "most of the day-to-day business of science consists in making observations or experiments designed to find out whether this imagined world of our hypotheses corresponds to the real one. An act of imagination, a speculative adventure, thus underlies every improvement of natural knowledge."

In "An Essay on Scians," his first, Medawar addresses the perennial philosophical misconception that science is an inductively structured activity. He points out that the inductive procedure of collecting a series of instances cannot lead logically to the general physical laws by which scientific knowledge is organized. Rather, leaps of imagination lead to the generalized statements of natural laws, which are then confirmed deductively by applying them to particular instances (e.g., the law of gravitation applies equally to the motion of cannonballs on Earth and galaxies in the depths of space).

In "Can Scientific Discovery Be Premeditated?" Medawar answers his own question with a firm No. In support of his position, he provides three case histories of discoveries which could not possibly have been premeditated: X rays, HLV polymorphism, and the nature of the disease myasthenia gravis.

While it is true that these and other discoveries were indeed fortuitously made, so categorical a negative cannot be completely justified. For example, there is the recently discovered W particle in physics for which experiments were specifically designed to find if such a particle in fact existed. Clearly this is an important premeditated scientific discovery. Medawar's analysis is, in this instance, a

GM has an idea that may save your life.

Or pay $10,000.

Seat belts help save lives and reduce injuries.

Yet seat belt usage is only about 15 percent.

General Motors thinks this too often results in tragedy. We want to do something to encourage more people to wear their seat belts.

This may help.

Effective April 16, 1984, every new GM car and light truck delivered by a GM dealer in the United States comes with a one-year insurance certificate from MIC General Insurance Corporation, the insurance people from GM.

The certificate will be provided without additional charge, and every occupant wearing a seat belt in these cars and trucks will be covered by this protection. $10,000 will be paid to the estate of any occupant who suffers fatal injuries while wearing a GM seat belt.

Now there is even more reason to buckle up.

GM
Chevrolet
Pontiac
Oldsmobile
Buick
Cadillac
GMC Truck

Buckle your ~~seat belt~~ Life Belt

P. B. Medawar probes delicate balance between science and metaphysics.

bit too restrictive. His too narrow focus on novel results and unexpected findings has misled him into making too strong a claim. Nevertheless, he is right in insisting on the not inconsiderable role that luck has played in the history of science.

Finally, in his title essay, Medawar is surely right when he concludes that there are no limits on science with regard to its efficacy in answering questions about the organization and structure of the material Universe. As for "transcendent" questions, such as whether a personal God exists, or why there is something instead of nothing, he shows them to be, in principle, not scientifically answerable. The belief in religious or other transcendent answers is valuable, in Medawar's view, primarily for the peace of mind that such beliefs give to those who hold them. For his part, he is unable to assent intellectually to any claims to knowledge which by their nature are not testable.

Medawar's small, brilliant gem of a book affirms and celebrates the tremendous accomplishments that the scientific enterprise has already bestowed, and will continue to bestow, on all humanity. The volume is filled with deep insights into the nature and practice of science and will be of great interest to both laymen and scientists.

Ronald Bailey
Free-lance reviewer and writer on science and economics

Rent Mother Nature
Lease A Sugar Maple Tree Or A Sap Bucket For One Year

A really different Christmas gift idea. First, we'll send each lucky friend, in time for Christmas, a Gift Announcement Card from you—and a copy of an authentic 1890 Treasury Dept. Lease, hand-personalized, and suitable for framing. Then, in Spring '85, when all the sap has been gathered and processed, each tree tenant will receive a big, decorated jug filled with at least 60 ounces of 100% pure Maple Syrup—30 ounce guarantee to bucket tenants—even more if Mother Nature yields an abundant supply! We do all the work—your friends get the delicious natural syrup—and you get all the raves!

Tree Lease $25.00 or Bucket Lease $15.00
Send check plus $4.00 handling per gift to:
NORTH COUNTRY CORP. Dept. NC 101A
Box 193, 106 Appleton St., Cambridge, MA 02138.
Include full name and address of gift recipient.
VISA & Mastercharge Accepted With Expiration Date
To order by phone call (617) 734-5409.

SURE FOOTED COMFORT

Extra large **Non-Slip Bath Mat** covers most tubs from end to end. 270 unique suction cups create soft, comfortable cushions of air when sitting or standing — bathing or showering. Helps protect your family. 15¾" x 41". Made of vinyl. Resists dirt, mildew. Stays soft, luxurious. Machine washable. Lets you bathe in "Cushioned-Air" comfort. Choose white, champagne, blue or pink. $13.00. Add 50¢ postage and handling. NJ residents add 6% tax. We ship promptly. Money Back Guarantee.

Order by check, Visa, MasterCard- | **BETTER SLEEP, INC.** Box VX, New Providence, NJ 07974

Stand at the
NORTH POLE

On a bright sunny day in 1985, twelve of us with our expert guide will stand at the North Pole and toast the rest of the world with champagne. For $7950, you could join us for 11 days in April. Write or call 800-426-7794.

Society Expeditions

Dept. SM12 723 Broadway East, Seattle WA 98102

Name _____
Address _____
City State Zip

CRUISES ☐ Antarctica ☐ Amazon ☐ Lost Islands ☐ Indonesia ☐ Alaska ☐ NW Passage ☐ New Guinea ☐ China ☐ Japan ☐ Chilean Fjords ☐ Caribbean PRIVATE TRAINS ☐ Orient Express ☐ Trans-Siberia ☐ Imperial Peking Express ☐ India ☐ Paris to Peking ☐ LAND EXPEDITIONS ☐ GOURMET ADVENTURES

At Last!
A Small Tiller That Works!

Forget about big, clumsy yank-you-along tillers . . . forever!

The Mantis tills and weeds a *sensible* 6"-9" wide (not 20" *or more* like big tillers). Mantis weighs just 20 lbs. (not 200 to 300lbs.). Mantis' tines are so tough they're *warranted for life* . . . Mantis' engine is so durable we give you a *lifetime replacement* agreement.

The secret is *speed.* Mantis' 36 "tine teeth" spin at 240 RPM (*twice* the speed of big tillers)! As a result, Mantis' tines go through tough soil like a chain saw goes through wood. *No jerking . . . no yanking you along . . .* and Mantis *turns* on a dime!

Most big tillers were designed to just till (but many now offer clumsy "add-on" attachments to try to justify their high cost). The Mantis-20 was *designed from the beginning* to precisely match a small, powerful engine to a variety of *useful* attachments for your yard *and* garden. Tiller. Cultivator. Furrower. Edger. Lawn Aerator. Lawn De-Thatcher. Hedge Trimmer.

Most big tillers cost an arm and a leg. Despite the fact that the Mantis-20 is a tough, durable, precision instrument . . . it costs a *fraction* of what you'll pay for a big tiller.

Put the fun back in gardening. Join the move to Mantis!

PRE-SEASON BONUS: Early orders get a FREE Border Edger (a $41 value!)

©1984 MMC

Mantis
Mantis Manufacturing Co.
1458 County Line Rd., Dept. 573
Huntingdon Valley, PA 19006

☐ Please send me more information on the Mantis 20 Tiller/Cultivator.

Name _____
Address _____
City _____
State _____ Zip _____

The $64,000 question.

80 PROOF LIQUEUR. IMPORTED BY © W.A. TAYLOR & CO., MIAMI, FLORIDA 1984

Additional reading

Bedouin (p. 44)

Nomads of the Nomads by Donald Powell Cole, Aldine, 1975

The Last Nomad by Wilfred Thesiger, Dutton, 1979

Manners and Customs of the Rwala Bedouins by Alois Musil, Oriental Explorations and Studies No. 6, American Geographical Society (New York), 1928

Travels in Arabia Deserta (2 vols.) by Charles M. Doughty, Dover, 1979

The Arab of the Desert by H. R. P. Dickson, Allen & Unwin (London), 1951

Arabian Sands by Wilfred Thesiger, Penguin, 1981

Samuel Johnson (p. 60)

Young Sam Johnson by James L. Clifford, McGraw-Hill, 1955

Dictionary Johnson by James L. Clifford, McGraw-Hill, 1979

Samuel Johnson by W. Jackson Bate, Harcourt Brace Jovanovich, 1977

Boswell's Life of Johnson (6 vols.), edited by George Birkbeck Hill, revised by L. F. Powell, Clarendon, 1934-64

Talking trees (p. 84)

"Rapid Changes in Tree Leaf Chemistry Induced by Damage: Evidence for Communication Between Plants" by Ian T. Baldwin and Jack C. Schultz, *Science*, July 15, 1983

"Plants in Their Own Behalf" by Ben Patrusky, *Mosaic*, National Science Foundation, March/April 1983

"Responses of Alder and Willow to Attack by Tent Caterpillars and Webworms: Evidence for Pheromonal Sensitivity of Willows" by David F. Rhoades, *Plant Resistance to Insects*, American Chemical Society, 1983

Computer music (p. 97)

Introduction to Electro-Acoustic Music by Barry Schrader, Prentice-Hall, 1982

The Technology of Computer Music by Max V. Mathews, MIT Press, 1969

The Digital Domain, Elektra compact disk, 9 60303-2

Computer Music by Michael McNabb, 1750 Arch Recordings S-1800

Marshland by George Marsh and Mel Graves, 1750 Arch Recordings S-1791

Sun Valley (p. 108)

Sun Valley by Dorice Taylor, Ex Libris (Sun Valley), 1980

Sun Valley: A Biography by Doug Oppenheimer & Jim Poore, Beatty Books (Boise, Idaho), 1976

High on the Wild with Hemingway by Lloyd Arnold, Caxton, 1968

How It Was by Mary Welsh Hemingway, Knopf, 1976

Elf owls (p. 122)

The Biology of the Elf Owl, Micrathene whitneyi by J. David Ligon, Miscellaneous Publications No. 136, Museum of Zoology, University of Michigan, 1968

Ecology of the Saguaro by Warren F. Steenbergh and Charles H. Lowe (3 vols.), Scientific Monograph Series, National Park Service, 1976-77

"Life on a Tall Cactus" by Ruth Kirk, *Audubon*, July 1973

James Tissot (p. 134)

James Tissot by Michael Wentworth, Oxford University Press, 1984

James Tissot, edited by Krystyna Matyjaszkiewicz, Abbeville Press, 1985

"Vulgar Society," The Romantic Career of James Tissot by James Laver, Constable (London), 1936

James Tissot: Catalogue Raisonné of his Prints (exhibition catalog) by Michael Justin Wentworth, Minneapolis Institute of Arts, 1978

John L. Sullivan (p. 152)

The World Heavyweight Boxing Championship: A History by John D. McCallum, Chilton, 1974

Life and Reminiscences of a 19th Century Gladiator by John L. Sullivan, Jas. A. Hearns (Boston), 1892

Pictorial History of American Sports by John Durant and Otto Bettmann, Barnes, 1965

The Heavyweight Champions by John Durant, Hastings House, 1976

The $20.00 answer.*

To send a gift of Drambuie, call 1-800-238-4373. Void where prohibited by law.
*Approximate price 750 ml bottle, which will vary depending on location of purchase.

Show her your interest has compounded daily.

De Beers

The Diamond Anniversary Ring.
A band of diamonds that says you'd marry her all over again.
A diamond is forever.

Smithsonian highlights

Once again for the holiday season, the National Museum of American History and the Office of Horticulture will install Christmas trees in the pendulum area of NMAH. Craftspeople from all over the country participate in this effort: for example, the folded paper sculptures for the origami tree are being made by the Washington, D.C., chapter of Ikebana International. Others will be a New Mexico tree, with *ojos de Dios* ornaments and strings of chili peppers and yucca pods, a French ribbon tree and a seashell tree. The 12 trees—all living—will be on display from December 13 to January 2, 1985.

Special December exhibits and events

Freer Gallery of Art
Kyoto Ceramics (through April 21, 1985) History of pottery production in Kyoto from 1600 to 1868, with 25 examples.

National Museum of Natural History
China Today: A Self Portrait (through January 6, 1985) Photographs of China taken by members of the Chinese Photographers Association.

National Museum of American Art
Pastel Portraits from Studio House (December 2-June 30, 1986, at Barney Studio House) These 15 pastels of prominent Washingtonians and visitors were painted by Alice Pike Barney. Free guided visits; for reservations, call 357-3111.
Homage to Franz Kline: Photographs by Aaron Siskind (December 7-March 3, 1985).

National Portrait Gallery
Mencken in Winter: Reveries of an Iconoclast (December 14, 15; 7:30 P.M.) Portrait in Motion performance by John Daniel Reaves.
Miguel Covarrubias Caricatures (through January 13, 1985).

GREAT GIFTS FOR COMPUTER USERS

1000s of Programs • Disks
Surge Suppressors • Disk Holders
Work Stations • Modems
Joy Sticks • Dust Covers • Books
Gift Certificates

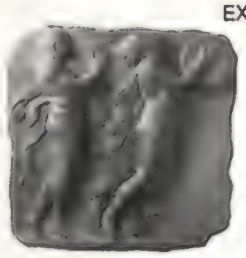
STOP IN TODAY!

For the Software City store nearest you, call 1-800-421-5300 Ext R264 or 201-833-8510.

Software City®

RETAIL STORE FRANCHISES AVAILABLE. Offering by prospectus only. Write Software City, Dept. S, 1415 Queen Anne Road, Teaneck, NJ 07666.

EXCLUSIVE REPLICAS OF CLASSICAL SCULPTURE FROM MAJOR EUROPEAN MUSEUMS



BACCHIC DANCE • Found in 1776 on the site of ancient Gabii. From the National Museum, Naples. 26" × 27" $295.00 P.P. in terra cotta or green bronze finish.

GIUST GALLERY
1920-B Washington St., Boston, MA 02118
PLEASE SEND $2.00 FOR CATALOGUE

LIFETIME POCKET SCREWDRIVER

Handiest gadget ever! Only 2 in. long, fits on his or her keychain . . . ready to open lids & lighters, fix motors etc. 1001 uses! We smartly engrave owner's initials. Guaranteed forever. Made of solid gleaming Stainless Steel. Full price $5.00 each. Money back if not delighted. We ship in 2 days. Mail to: **Elgin Engraving Co., 957 Edwards Ave., Dundee, Illinois 60018.**

TRAVEL NORTH with ARCTIC SPECIALISTS

• NORTH POLE
• CANADIAN ARCTIC & GREENLAND

SPECIAL ODYSSEYS
Box 37-S, Medina, WA 98039 (206) 455-1960

At NMAH, living trees will decorate the pendulum area during the holidays.

National Air and Space Museum
The Beginning of the Jet Age (December 13; 7:30 P.M.) Lecture by Hans von Ohain, the developer of the first jet engine to fly.
Was There a Christmas Star? (December 11, 13, 18, 20; noon; Albert Einstein Planetarium) Monthly sky lecture.

National Museum of American History
Trees of Christmas (December 13-January 2, 1985) Twelve trees, including a child's tree, a teddy bear tree and a Colonial tree.
Holiday Celebration (December 26-31) Barbershop quartets, crafts demonstrations, storytelling.

Cooper-Hewitt Museum (New York)
Embellished Calendars: An Illustrated History (through February 24, 1985) See *Highlights continued.*
New Vistas: American Art Pottery, 1880-1930 (through January 27, 1985).
European Illustration: 1974-1984 (through February 3, 1985).

National Museum of African Art
Praise Poems: The Katherine White Collection (through February 24, 1985) Major exhibition of figural sculptures and masks.

Hirshhorn Museum & Sculpture Garden
Content: A Contemporary Focus, 1974-1984 (through January 6, 1985).
European Modernism: Selections from the Permanent Collection (through January 13, 1985).

Prime her interest.

THE MÉMOIRE COLLECTION®
Remind her she's still in the prime of your life with a Diamond Anniversary Ring from The Mémoire Collection. 32 classic styles.

For the jeweler nearest you, call toll free: (800) 345-7508.
In Pennsylvania, call (215) 938-0721.

© 1984. THE MÉMOIRE COLLECTION. PRESENTED BY ARMAND JACOBY.

Picture yourself in the world of a Princess.

For reservations and information, see your travel agent or call 800-223-1818; in N.Y. State 800-442-8418; in N.Y. City 212-582-8100; in Canada 416-964-6641

ACAPULCO PRINCESS

ACAPULCO: Acapulco Princess, Pierre Marques. BAHAMAS: Bahamas Princess Resort and Casino
BERMUDA: Southampton Princess, The Princess. Represented by Princess Hotels International, Inc

SOLID WOOD DECOYS

REG. $65, NOW **$16.95**

"MALLARD"

ALL 14" LONG

The set comprises of MALLARD DRAKE (ILLUSTRATED) MALLARD HEN, PINTAIL DRAKE, PINTAIL HEN, CANADIAN GOOSE, WOOD DUCK & CANADA GOOSE

Traditional hand-painted ducks in authentic colors. These smooth, solid, hand-sculptured decoys have all the details of others costing up to $300. Very heavy (2½ - 3½ lbs.), solid mahogany, pine & oak.

$16.95 each, 2 or more only $14.95 each

A unique purchase enables us to offer them at this incredible price, (due to devaluation of British pound).

PLUS $3.50 EACH POSTAGE AND HANDLING ($2.50 per additional)

Send Check/M.O., Visa/Mastercard. Send name, no. & exp. date.

LONDON ANTIQUE DEALERS

930 E. St., (Dept. 255) San Diego, CA 92101

TOLL FREE: 1-800-223-8579

Immediate delivery. Full money back guarantee if not entirely satisfied.

File *Smithsonians* Like Fine Books!

Deluxe files hold magazines in first-edition style. Gold-stamped, blue leather-like fronts. Holds 12 issues. Also supplied for **Natural History, Audubon, Scientific American,** many others. To order, list titles and quantities. Postpaid. **$6.50 ea., $5.85 ea. for 3 or more.** Send check; or MasterCard or Visa number, expiration date, signature to **Highsmith, Box 800SM, Ft. Atkinson, WI 53538.** Or call Toll-Free 1-800-558-2110. (In WI 1-800-558-3313.)

play winning

CRIBBAGE

Written, illustrated by Montana artist DeLynn Colvert (Northwest's top-ranked player). Unique winning "26 Theory" based on 20-year data study. Fully illustrated, handsomely printed. A quality gift for beginner or expert.

$9.95 postpaid 2 for $16

STARR STUDIOS • Box 5604-S • MISSOULA, MT 59806

ARCHAEOLOGICAL TOURS LED BY NOTED SCHOLARS

1985

THAILAND & BURMA *Jan 17 – Feb 7*
EGYPT *Feb 27 – March 17*
INDONESIA *March 2 – 21*
PERU *March 8 – 24*
ISRAEL *April 16 – 29. October 15 – 28*
CHINA
Ancient Capitals *April 18 – May 9 & June 6–27*
Great Silk Route *May 11 – June 4 & Aug. 17–Sept. 11*
TIBET *May 21 – June 13*
SICILY & SOUTH ITALY *May 4 – 20*
TURKEY *May 16 – June 4*

Fall Tours available
For information and reservations write or call

archaeological tours

30 E. 42 St. Suite 1202S New York, NY 10017 212-986-3054

Resident Associate Events

To become a Resident Associate, or to find out about the many other activities presented monthly, or for fee and ticket information, call 357-3030. Here are some December events:

A Sense of Style: Great American Furniture (December 1) All-day seminar with experts on American furnishing and decor.

Sun Singer (December 2; 7:30 P.M.) Third program in the International Poetry Forum Series presents poetry of Samuel Hazo and jazz of Paul Winter.

Timeless Beauties of Iraq: Fashion Show and Reception (December 4; 8 P.M.) Modern fashions incorporating ancient motifs.

Masters of Soviet Mountaineering (December 5; 8 P.M.) Mountaineer Michael Monastyrskii introduces film.

Smithsonian Chamber Orchestra plays Mozart! (December 7, 8; 8 P.M.) Dutch violinist Jaap Schroeder directs.

La Belle Epoque: Paris at the Turn of the Century (December 8) All-day seminar with Professor Dale Harris.

Lecture & Seminar Program

More than 50,000 Associates in California will have the opportunity to meet Smithsonian curators and scientists when the Lecture & Seminar Program visits Oakland, Berkeley, Sacramento and Davis January 7-15. These programs, which feature presentations on aviation history, American art, marine botany and folk music, are intended to acquaint Associates with current Smithsonian research. Programs on volcanology, tropical bamboos and nature printing will be featured during the Lecture and Seminar series in Honolulu, January 31-February 10. Associates residing in these areas should have received invitations by this time. For further information write: Lecture & Seminar Program, A&I 1208, Smithsonian, Washington, D.C. 20560.

Exhibition catalogs

Catalogs available at this time include:
Visions of the Future (the art of Robert McCall; cloth, $9.98)
Content (paper, $15)
Chicago Furniture (paper, $25)
Praise Poems (paper, $17.95)
Baseball Immortals (paper, $4.95)
Newcomb Pottery (paper, $14.95)

To order, send check or money order to Museum Shops, Box 44083, Washington, D.C. 20026-0083. Include 15 percent of total purchase to cover postage and handling (minimum, $1.75).

Plains Indian Art & Artifacts.

Free Catalog shows painted shields, mounted trophy buffalo skulls, war arrows, peace pipes, chokers, breast plates, war clubs, tomahawks, lances, horse dance sticks, star quilts and more. Exclusive source. Hand-made with traditional tools and authentic materials. Many have interesting stories to tell from Cheyenne, Sioux and Blackfoot heritage. Collector's items, unique gifts and stunning decorations.

Write or call:

PRAIRIE EDGE P.O. Box 8303 Department SM
Rapid City, South Dakota 57701 Area Code (605) 341-3620

FAMILY CREST RINGS

14K Gold **$590.00**
Sterling Silver . **$195.00**

WE WORK IN THREE BASIC WAYS—If you have a crest send us a copy of it and that is what we engrave, or you may use the one shown in our Armorial Booklet, or you may design your own. **SEND FOR OUR FREE COLOR CATALOGUE.** Or, if in addition to the free catalogue you want our 96 page Armorial Booklet that contains 4,000 drawings of coats of arms for the names most frequently used in this country plus instructions on how to design your own coat of arms. **SEND US $2.00.**

HERALDICA IMPORTS, INC. **Dept. SM**
21 WEST 46th ST. NEW YORK, N.Y. 10036

Handsome New BIKEPLATES

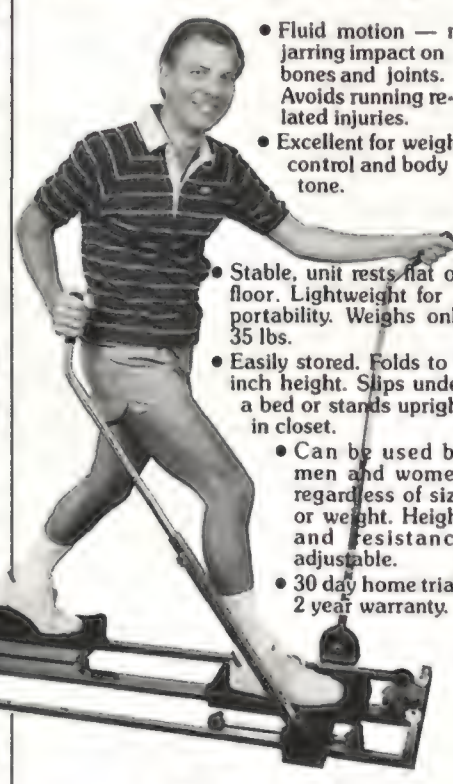
THIS BIKE BELONGS TO
CHRIS ROGERS

Beautify any bicycle and **stop thefts!** Our rounded bikeplates have a new adhesive-bond back, lock tight anywhere on the bike's frame. Solid brass with silver finish, 1" x 2". Expertly engraved any way you choose (limit 50 letters). Full price $5.00 each. Satisfaction guaranteed or money back. We ship in 2 days. Mail orders direct to **Elgin Engraving Co.,** 957 Edwards Ave., Dundee, Illinois 60118

The Fitness Master LT-35

TOTAL SYSTEM FOR CARDIOVASCULAR FITNESS.

Simulates cross-country skiing, regarded by fitness authorities as the top cardiovascular exercise. Rated higher than jogging, swimming, biking or rowing.



- Fluid motion — no jarring impact on bones and joints. Avoids running related injuries.
- Excellent for weight control and body tone.
- Stable, unit rests flat on floor. Lightweight for portability. Weighs only 35 lbs.
- Easily stored. Folds to 5 inch height. Slips under a bed or stands upright in closet.
- Can be used by men and women regardless of size or weight. Height and resistance adjustable.
- 30 day home trial. 2 year warranty.

For a Free Brochure call:

TOLL FREE 1-800-328-8995

In MN 1-612-474-0992 Mon-Fri 8am-5pm

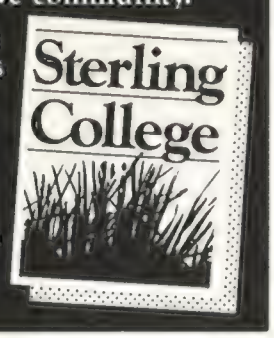
Fitness Master, Incorporated
1387 Park Road Dept. B
Chanhassen, Minnesota 55317

And Your Future?

At Sterling we teach Life Skills through demanding academics focusing on natural resources, specially designed outdoor stress/challenges, and hands-on responsibilities in a small, supportive community.

Take on a Sterling College year. Join us September 25, 1985.

Call or write:
Sterling College
Admissions, Box 11
Craftsbury Common
Vermont 05827
(802) 586-2561



Full Size Reproductions of Famous Military Awards
$16.00 Postpaid
THE BLUE MAX
Complete With Ribbon
Illustrated Catalog 50¢ or FREE with Order
Der Dienst
P.O. Box 221-K, Lowell, Michigan 49331

EXPLORE GRAND CANYON BY RIVER!

ALL INCLUSIVE ONE-WEEK EXPEDITIONS

Free Color Brochure

GRAND CANYON EXPEDITIONS

RON SMITH • PHONE (801) 644-2691
P.O. BOX O/KANAB, UTAH 84741

Statement of ownership, management and circulation (required by 39 U.S.C. 3685) of SMITHSONIAN published monthly at the Smithsonian Institution, 900 Jefferson Drive, Washington, D.C. 20560 for October 1, 1984. General business offices of the publisher are located at 900 Jefferson Drive, Washington, D.C. 20560. Name and address of publisher is Joseph J. Bonsignore, 900 Jefferson Drive, Washington, D.C. 20560. Name and address of editor is Donald B. Moser, 900 Jefferson Drive, Washington, D.C. 20560. Owner is: Smithsonian Institution, 900 Jefferson Drive, Washington, D.C. 20560. Known bondholders, mortgagees, and other security holders owning or holding 1 percent or more of total amount of bonds, mortgages or other securities: None. The purpose, function, and nonprofit status of this organization and the exempt status for Federal income tax purposes have not changed during preceding 12 months (Section 411.3, DMM). The average number of copies of each issue during the preceding 12 months are: (A) Total number of copies printed: 2,135,233; (B) Paid circulation: (1) Sales through dealers and carriers, street vendors and counter sales: 12,790; (2) Mail subscriptions: 2,103,749; (C) Total paid circulation: 2,116,539; (D) Free distribution by mail, carrier, or other means: 13,120; (E) Total distribution: 2,129,659; (F) Copies not distributed: (1) Office use, left-over, unaccounted, spoiled after printing: 2,068; (2) Return from news agents: 3,506; (G) Total: 2,135,233. The actual number of copies of single issue published nearest to filing date are: (A) Total number of copies printed: 2,259,133; (B) Paid circulation: (1) Sales through dealers and carriers, street vendors and counter sales: 13,650; (2) Mail subscriptions: 2,225,000; (C) Total paid circulation: 2,238,650; (D) Free distribution by mail, carrier, or other means: 12,564; (E) Total distribution: 2,251,214; (F) Copies not distributed: (1) Office use, left-over, unaccounted, spoiled after printing: 4,414; (2) Return from news agents: 3,505; (G) Total: 2,259,133. I certify that the statements made by me above are correct and complete.

(signed) Carey O. Randall
General Manager

Smithsonian on the air

Radio Smithsonian: Features on this weekly half-hour program include stories of scientific discovery from archaeologist Mary Leakey, speculation on living and working in outer space, and a musical look at Cole Porter.
Smithsonian Galaxy: Short radio features explore history, science, art.
Here at the Smithsonian . . .: Two-minute TV features include a celebration of the Hirshhorn Museum's tenth anniversary and a look back at Teddy Roosevelt's collection trip to Africa.
Smithsonian World: "The Last Flower," a new episode of this series on PBS, December 12, 8 P.M.

To find out what stations in your area carry these radio and TV programs, write: Office of Telecommunications, MNH Room C222B, Washington, D.C. 20560.

Smithsonian Institution Traveling Exhibition Service

SITES circulates exhibitions to hundreds of cities outside Washington. To sponsor a show in your community, write: SITES, Smithsonian, Washington, D.C. 20560. Here are some December exhibits:
Huntsville, Alabama (December 2-January 3, 1985) *Irish Silver*, Huntsville Museum of Art.
Jacksonville, Florida (November 24-January 20, 1985) *Radiance and Virtue: The R. Norris Shreve Collection of Chinese Jades*, Cummer Gallery of Art.
Ingleside, Illinois (November 23-December 23) *Tallgrass Prairie*, Volo Bog State Natural Area.
New York City (December 1-March 24, 1985) *Exploring Microspace*, IBM Gallery.

Membership benefits when visiting the Smithsonian

A cordial welcome is yours at the Associates' Reception Desk in the castle, the original Smithsonian Institution building, from 10 A.M. to 4 P.M. daily. You'll receive special orientation materials in an attractive re-usable tote bag as well as all the details of your other benefits: discounts in most Smithsonian shops and dining in the Associates' Court.

Planning ahead can add to your pleasure: a pre-visit packet brimful of helpful information is free; send postcard request or phone Associates' Reception Center, Smithsonian Institution, Washington, D.C. 20560, (202) 357-2700; for hearing impaired, TDD (202) 357-1729. Allow two weeks for receipt.

BY PRIVATE TRAIN
PARIS TO PEKING
An exclusive luxury rail adventure! Journey through the heart of Europe to the exotic Far East. Enjoy a collage of cultural festivities while en route. Expert guides/lecturers. Superb regional cuisines. May, August, September. 24 days from $4990. Write or call 800-426-7794.

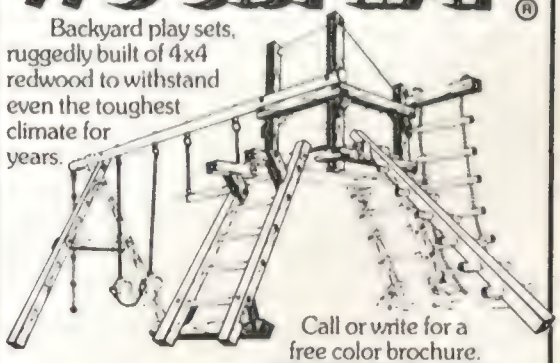
Society Expeditions
Dept. SM12 723 Broadway East, Seattle WA 98102

Name
Address
City State Zip

CRUISES ☐Antarctica ☐Amazon ☐Indonesia ☐Lost Islands ☐Alaska ☐NW Passage ☐New Guinea ☐China ☐Japan ☐Chilean Fjords ☐Caribbean PRIVATE TRAINS ☐Orient Express ☐Trans-Siberia ☐Imperial Peking Express ☐India ☐Paris to Peking ☐LAND EXPEDITIONS ☐GOURMET ADVENTURES

CUDDLE UP
with our FREE CATALOG of
European-style DOWN QUILTS
Cotton or cotton blend fabrics, filled with your choice of duck or goose down. Decorator sheetcase covers and puffy pillows, too. Our quality is guaranteed. And our prices are reasonable. Send us your name and address and we'll rush our catalog.
WARM THINGS
180 Paul Dr—Dept SO / San Rafael, CA 94903
415/472-2154—48 HR SERVICE—MC & VISA

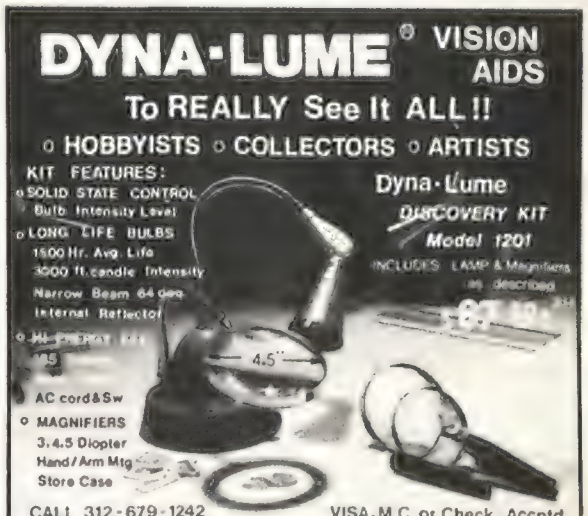
WOODPLAY®
Backyard play sets, ruggedly built of 4x4 redwood to withstand even the toughest climate for years.



Call or write for a free color brochure.
WOODPLAY, Dept. SM
P.O. Box 27911, Raleigh, NC 27611, (919) 832-2970

PATAGONIA
One of the 34 places where travel with Questers becomes a learning experience.
For Tour Directory write or call:
QUESTERS WORLDWIDE NATURE TOURS
Dept. SM: 257 Park Ave. S; NY, NY 10010 (212) 673-3120

DYNA-LUME® VISION AIDS
To REALLY See It ALL!!
○ HOBBYISTS ○ COLLECTORS ○ ARTISTS
KIT FEATURES:
○ SOLID STATE CONTROL Bulb Intensity Level
○ LONG LIFE BULBS 1500 Hr. Avg. Life 3000 ft. candle Intensity Narrow Beam 64 deg. Internal Reflector
○ MAGNIFIERS 3, 4.5 Diopter Hand/Arm Mtg Store Case
AC cord&Sw
Dyna-Lume DISCOVERY KIT Model 1201
INCLUDES LAMP & Magnifiers as described



CALL 312-679-1242 VISA, M.C. or Check, Accptd.
ORDER: Model No. 1201 DYNA-LUME Discovery Kit, as above
ONLY $87.50 Plus $4.50 Shipping & Handling. Illinois Res. add 7%
New 1985 DYNA-LUME VISION AIDS Catalog with order
SCIENTIFIC INSTRUMENTS, Inc., 8236 N McCormick Blvd., Skokie IL 60076
©1984 SI Inc CUT OUT AND ORDER TODAY ® Reg TM SI Inc

Highlights continued

Time marches on at Cooper-Hewitt

Although calendars go back to antiquity, it was Johannes Gutenberg, the first "job printer," who really inaugurated the era of calendars for the common man. During the Middle Ages, they had been the domain of the learned few, depicting subjects such as seasonal labors or signs of the zodiac—and, always, telling when the saints' days fell.

Picture calendars are the subject of a new exhibition at the Cooper-Hewitt Museum, which has brought together 100 examples from the 13th century to the present. Entitled "Embellished Calendars: An Illustrated History," it will run through February 24, 1985.

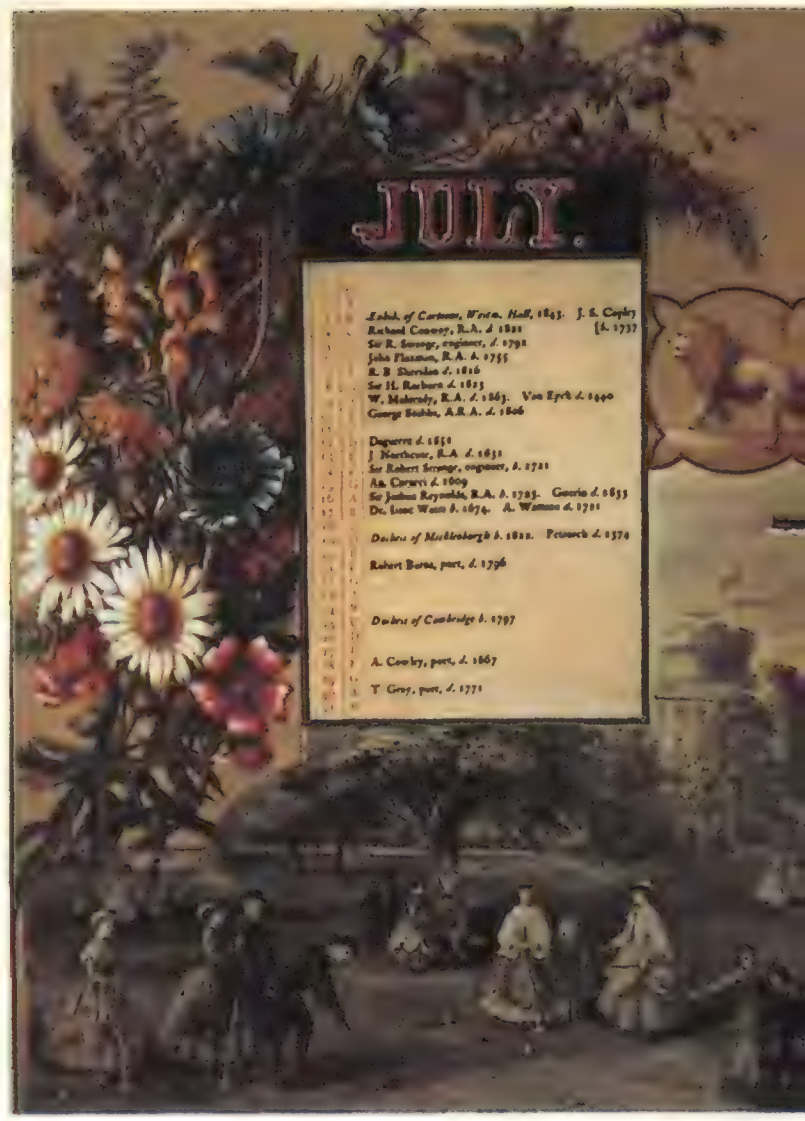
From the Renaissance on, calendars became progressively more secular, although many still followed the medieval perpetual-calendar model. The French 18th-century perpetual calendar illustrated here (lower right), for instance, had the days of the month written in the center; and, on the column to the left, the days of the week could be entered, probably with the use of a movable strip.

The 19th-century English calendar (upper right) was also a perpetual calendar. It used a system whereby the letters A through G represented the days of the week, so that with a handy guide the owner could readily use it for any year. This calendar recorded literary and artistic milestones, although like medieval forerunners, it still included the sign of the zodiac (Leo the Lion) and a seasonal occupation (playing croquet).

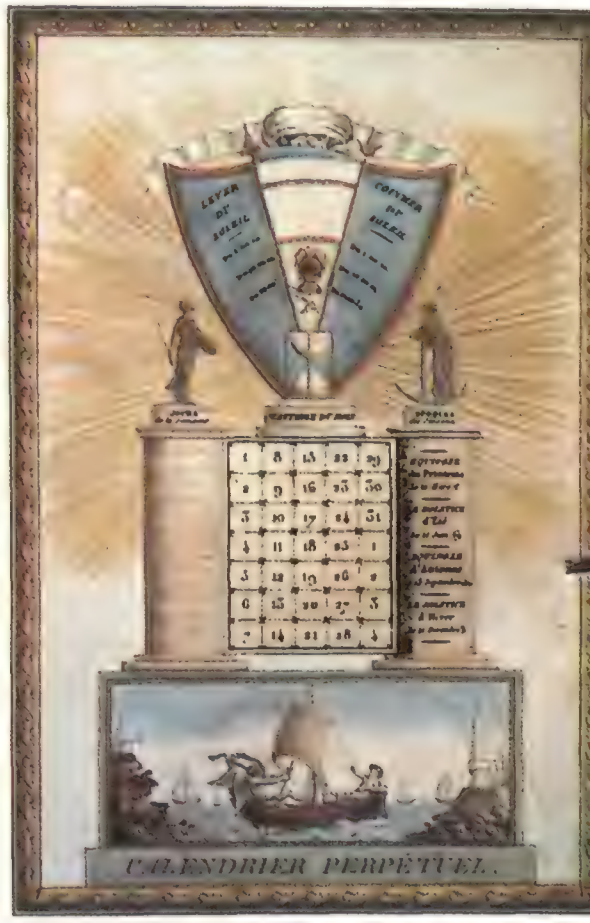
In the 19th century, calendars for advertising became popular. "One of the most unusual was sent to customers of the Antikamnia Chemical Company in St. Louis, maker of a patent medicine," says Lucy Fellowes, organizer of the exhibition. While most patent-medicine advertising calendars used images evoking "the picture of health," Antikamnia went the opposite route. On their calendar (upper left), skeletons in various forms of attire—dressed as cowboys, doctors, newsboys or wealthy connoisseurs contemplating the miracle pill—reminded the customer of the pitfalls of *not* using their product. "The images are a bit of a shock," says Fellowes. They also probably worked.
Constance Bond

Grim reminder to use patent medicine, on 1897 calendar.

Contemporary calendar is by Seymour Chwast.



English 19th-century perpetual calendar featured milestones of famous literary, artistic figures.



French perpetual calendar, 1795, had movable days of the week.

New York sign company used calendar to demonstrate its printing prowess.

You needn't travel halfway around the world to see the pyramids.

El Castillo pyramid, Chichen Itza

They're right next door, in Mexico. Not far from the Yucatan's glistening beaches, you can see ancient Mayan ruins at Chichen Itza—and climb to the summit of the magnificent El Castillo pyramid. Venture into the mysterious inner chamber of this thousand-year-old pyramid and you'll come face to face with a Mayan jaguar god, his jade eyes shining in the darkness. These traces of Mexico's early civilizations live on for you today, in over 11,000 carefully preserved archaeological sites throughout the country. Come, take a step back in time, and be welcomed by people as warm as our sun. Mexico is only hours away, with convenient flights from most major U.S. cities. See your travel agent for more information.

México is ready...

to take you back a thousand years.

©1984 Mexico Ministry of Tourism.

Join with other Smithsonian Associates

Travel and Study, at Home, Abroad . . . and

As a Smithsonian Associate, you can enjoy the benefit of culturally oriented experiences under the guidance of museum curators or visiting scholars. Your lively curiosity and broad interests have resulted in a comprehensive study program to meet many tastes and budgets.

Domestic Study Tours

Christmas at the Smithsonian December 7-9: Welcome the holidays with behind-the-scenes tours, music and festive dining.

Hawaii January 20-February 2 or February 17-March 2: Discover beaches, waterfalls and rain forests on a camping trip.

Puerto Rico February 4-13: Observe rare tropical birds and flowers and travel to remote areas of the island—from mountain rain forests to white sandy beaches.

Yellowstone in Snow February 15-25: Ski across magical landscapes to observe wintering elk and bison, steaming geysers.

Baja Whale Watch February 22-March 2: Board the *Royal Polaris* in San Diego for an unforgettable trip down Mexico's Baja peninsula to observe gray whales.

Savannah and Charleston March 23-30 or March 31-April 7: Enjoy warm Southern hospitality on a tour of historic homes, inland gardens and nearby plantations.

Okefenokee Swamp March 30-April 6 or April 6-13: A serene canoe trip through this unique wildlife refuge.

Arizona in Spring April 9-17 or April 11-19: From the Arizona-Sonoran Desert to the Chiricahua Mountains, see cacti in bloom, meet researchers in the field and attend a local Indian fiesta.

Civil War May 1-10: Trace the eastern campaign following the routes of Stonewall Jackson, Grant and Lee. Visit historic homes, towns and battlefields.

Chesapeake Bay Cruise May 18-25: Enjoy fresh crabs and oysters aboard the elegant yacht *Nantucket Clipper*, while learning about the bay's history. Cruise to such charming 18th-century towns as Annapolis, St. Michaels and Williamsburg.

Alaska June 15-25: Board the *Majestic Alaska Explorer* for a breathtaking cruise from Seattle to Ketchikan through Alaska's famed Inside Passage. Stop at historic ports of call to observe local Indian cultures; see killer whales and the turquoise water of Glacier Bay.

Grand Canyon July 5-15: Raft with expert boatmen through magnificent landscape. Camp beside the river, see Indian petroglyphs, learn about wildlife, history.

Journey on the Green River July 19-29: Experience the thrill of white water and the beauty of Utah's magnificent Desolation and Gray Canyons in your own Sportyak.

Crow Canyon Archaeology August 11-18: Get hands-on experience as you join archaeologists near Mesa Verde, Colorado, to participate in a dig at an ancient Indian site.

Coming in June: Architectural history of Chicago; Vermont's historic villages.

Coming in July: At Waterton-Glacier International Peace Park, hike through spectacular alpine scenery with naturalists.

Coming in September: The *Delta Queen* steams upper Mississippi with fireworks to celebrate Mark Twain's 150th birthday.

Washington "Anytime" Weekend: Plan a winter weekend to visit your choice of Smithsonian museums. Package includes two nights at Loews L'Enfant Plaza or the Hyatt Regency, meals and exclusive tour of Smithsonian castle. Application and payment must be received at least ten days prior to arrival.

Foreign Study Tours

People's Republic of China, 1985: Exclusive tours to a variety of destinations are led by a Sinologist and include intensive pretour briefing.

Mexico & El Tajín January 11-23 or March 22-April 3: Sample the diverse cultures around Mexico City and Veracruz.

Yucatán Adventure January 17-29 or February 14-26: From Mérida, tour extraordinary Maya ruins in the company of a pre-Columbian archaeologist.

Indian Wildlife Safari January 25-February 21: Travel by elephant and jeep to observe rare species of birds and animals in exotic India and southern Nepal.

Zapotec & Maya Mexico January 31-February 12 or February 28-March 12: Discover the archaeology and colonial cities, traveling from highland to rain forest to the Yucatán.

A Hike in New Zealand February 6-22: From Lake Te Anau to Milford Sound, discover wild flowers, crystalline lakes and snow-capped peaks on the Milford Track.

New Zealand February 6-23: Relish glorious scenery on this in-depth tour with talks on natural history, the Maori and Parliament. Includes a family visit.

Cruising the South Pacific February 23-March 10: At last, a Smithsonian cruise to enjoy the traditions, history and romance of Polynesia.

Indonesia March 10-31: Cruise beyond the ordinary to the islands of the Java Sea. Study natural history, observe local customs and traditional rituals.

Kyoto Seminar March 15-31: Live Japanese-style. Field trips complement lectures on art, history, religion and language.

Norman Countryside April 6-21 or October 5-20: The ancient city of Rouen provides a superb setting for walking tours, museum visits and special excursions.

Canals and Old Masters April 10-24: Art museums, historic tours and spring flowers highlight four days in Amsterdam. Then sail by riverboat to explore medieval Dutch and Belgian ports.

Paris and Provinces April 20-May 5: Six days in Paris with walking tours, special seminars at the Louvre, followed by a choice of travel to Provence or Burgundy.

Ecuador and the Galápagos Islands May 11-24: After visiting Quito and the Andean countryside, board the *Santa Cruz* for a study voyage to Darwin's famed islands.

Russia May 12-28: Leningrad, Moscow and Tallinn. See the Hermitage, Kremlin and other fabulous museums, palaces and landmarks. Visit schools, factories, clinics and enjoy the best of Russian theater.

Write National Associates, Capital Gallery 455 Smithsonian Institution, Washington, DC 20560 or call (202) 287-3362 for tour brochures

in Washington

Smithsonian Seminars

Expand your educational horizons as you combine a pleasure-filled visit to the nation's capital with stimulating week-long seminars that highlight Smithsonian museums and research activities. These purposeful vacation seminars feature richly illustrated lectures by expert faculty, behind-the-scenes tours of world-famous collections and the opportunity to share special interests with fellow Associates.

Animal Communication: Classic Studies and New Discoveries
March 24-29, 1985
Join scientists at the Smithsonian's National Zoological Park for an in-depth look at the fascinating ways in which animals communicate through camouflage, armament, subtle scents and brilliant visual displays. Led by Zoo Director Dr. Michael H. Robinson and other eminent animal behaviorists, the seminar features lectures and tours at the Zoo and field trips to both the Zoo's Conservation and Research Center, a breeding facility for exotic animals at Front Royal, Virginia, in the beautiful Blue Ridge Mountains, and the National Aquarium in Baltimore.

American Masterpieces: Three Centuries of Antique Furniture
March 24-29, 1985
Explore the dazzling collections of American antique furniture at the Smithsonian's Museum of American History, the Diplomatic Reception Rooms at the State Department, and Delaware's renowned Winterthur Museum with Oscar P. Fitzgerald, author of the acclaimed *Three Centuries of American Antique Furniture*, and antiques expert William Stahl of Sotheby's. This intensive course will highlight a wide range of historic styles and provide insight on authenticity, care, conservation and current market trends.

Watch this column for upcoming seminars on **Aircraft Restoration Workshops with Smithsonian Craftsmen,** May 19-23, and **Fine Ceramics of the Ming and Ch'ing Dynasties,** June 2-7. Smithsonian Seminars in Washington are intended to provide enjoyable educational opportunities that further your involvement with the Smithsonian. All programs include classes and tours, welcoming reception, daily breakfast with fellow Associates and a gala farewell luncheon. Hotel is optional.

or (202) 357-2475 for seminar brochures.

What On Earth Makes Bols Better?

Bols goes to the source—nature itself. In creating each liqueur's unique taste, we use only natural flavors, and we search the globe for the absolutely choicest ingredients, wherever they may be grown. Why do we go to such lengths to acquire these ingredients? Simply because the best ingredients in the world mean the best tasting drinks. So the next time you shop for your favorite liqueur, consider the source.

BOLS Liqueurs
Bring A World Of Taste To Your Drinks.

BOLS Liqueurs and Brandies 30-78 proof. Produced and bottled by Erven Lucas Bols Distilling Company, Louisville, KY. Under personal supervision of the Directors of Royal Distilleries Erven Lucas Bols, Nieuw-Vennep, Holland.

TIME INC.
PIC COLLECTION
CR: BILL PIERCE
TC 34077-70
DUPE
CR: SAHM DOHERTY
TIME INC.
PIC COLLECTION
TIME INC.
PIC COLLECTION
Cr: Ted Thai
TIME INC.
PIC COLLECTION
TC 40478-1
Ted Thai
PIC COLLECTION
T32773-2
DUPE
CR: HARRY MATTISON
TIME INC.
PIC COLLECTION
ORIGINAL TC 31495-1
CR: RUDI FREY
TIME INC.
PIC COLLECTION
TIME INC.
PIC COLLECTION
TIME INC.
PIC COLLECTION
TIME INC.
PIC COLLECTION
T28632-1
CR: NEILLEIFER
PIC COLLECTION
TIME INC.
CR: EDDIE ADAMS
T30699
Cr: Neil Leifer
T38126-1
DUPE
CR: BILL PIERCE
TIME INC.
PIC COLLECTION
TIME INC.
PIC COLLECTION
TIME MAGAZINE
ORIGINAL
TC 42733-1
TIME INC.
PIC COLLECTION
TIME INC.
PIC COLLECTION
CR: J.B. DIEDERICH
TIME INC.
PIC COLLECTION
TIME INC.
PIC COLLECTION
CR: RUDI FREY
TIME INC.
PIC COLLECTION
TIME INC.
PIC COLLECTION
CR: DAVID HOMEKEN

TIME

A moment frozen in time.

TIME is honored for photographs that communicate not merely events and objects, but understanding.

It seems that the more ways we have to get information, the more relevant TIME becomes. Other media supply facts daily, hourly, even instantaneously. But the sheer quantity of information makes TIME's weekly perspective all the more welcome, and has created a new surge of interest in the printed photograph, a moment frozen in time, an image that shows more than one's own eyes would see, isolated for study and analysis.

TIME is the leader among magazines for its excellent news photography. TIME photographers have won two Pulitzer Prizes, and the Overseas Press Club has honored TIME with seven Robert Capa Awards in the past nine years, and the Olivier Rebbot Award for the past three years running.

The whole idea of TIME is to communicate the essence of an event clearly, memorably and economically. It's a tough enough discipline for writers and editors, but even more difficult for our photographers. Given the magazine's space limitations, they must come up with a picture not only worth a thousand words but a dozen other pictures as well.

But it's a worthy discipline. *TIME has won more awards for photography than any other magazine of any kind in the world.* A likely reason more people read TIME than any other news magazine: 31 million men and women around the world, every week.

TIME

More goes into it.

©1984 Time Inc.

By Timothy Foote

Casting some reflections on the peacock's 'I'

In the good old days, when it came to nature, a fellow could count on all sorts of useful stereotypes. Pigs were dirty. Doves were peaceful. Peacocks were proud. And bulls grew angry at the color red. Wolves, of course, were much given to slavering after trappers and troikas in hopes of alfresco steak Tartar.

But in this voluble age of animal behaviorism, all is changed. Pigs are immaculate. Doves quarrel bitterly and sometimes peck one another to death out of sheer pique. Bulls seem to be color-blind. As for wolves, everybody knows they have given up slavering in favor of monogamy and self-discipline. If a wolf kills a caribou these days, it is only to keep the quality of the herd up to scratch.

After such disclosures, who would bet a buffalo nickel on peacock pride? Surely some zealous bird person will come forward with a photograph of crestfallen peacocks tucking into a dish of humble pie. But so far no one has. And I, for one, faced with a certain amount of anecdotal evidence, am getting back some of my old confidence in the pride of the peacock.

The birds, to be sure, are only fancy pheasants greatly enhanced by myth and literature. In Southern Asia, though, where they originated, peacocks were regarded as royal creatures and it was claimed 1) that they deterred serpents, 2) that their raucous cries warned of approaching tigers, and 3) that their beautiful "eyes" could ward off bad luck.

The ancient Greeks, however, knew that peacocks got their "eyes" from Mount Olympus. When Zeus warmed up to Io, a lovely creature, Hera, the jealous Queen of the Gods, cleverly hired Argus, a giant with 100 eyes, to watch them. Uncleverly, Argus fell asleep on the job. A discomfited Hera plucked out his eyes and flung them at the (till then) unmarked tail of her favorite bird.

As the birds migrated farther westward their reputation declined. In medieval Europe, thanks to their apparent fondness for vainglorious display, they became symbols of vanity, a minor form of pride, at a time when PRIDE was seen as the deadliest of sins. In art, even one measly peacock feather on a lady's fan or a serving-boy's hat was a sure tip-off to viewers that the painter was making a point about pride or the vanity of human wishes.

By the late 1700s, in England, poet William Blake belatedly did something for the birds' public image when he wrote: "The pride of the peacock is the glory of God." A splendid line, but not entirely convincing because, despite his genius, everyone knew Blake was sometimes crazy as a hoot owl.

I met my first peacock during a tour of a stately home in England, after hearing a really awful sound. It was a mixture of raucous shriek and choking scream, such as an especially horrid governess might emit if set upon by some blackhearted butler. And there stood a solitary peacock. Such a scream, given in such a decorous place, whether or not it bespoke real pride, at least suggested arrogance.

Shortly afterwards I visited a friend near London who was renting a creamy 18th-century house. It came with a walled garden big enough for the Super Bowl—and a pair of peacocks.

Could they fly? I wanted to know. Well, yes, they could fly, though not very well (no source of pride there, I thought). But they did keep flapping their way over the garden wall. Neighbors complained. Police came. My friend built the birds a better house. Talked to them sternly. Spoke of reviving peacocks' tongues as a delicacy. Nothing availed.

Until one neighbor complained that the birds kept coming to his house and looking in at his French doors. Looking in at the French doors? Yes. Next time the irate neighbor called, my friend let himself out his garden gate and edged on little cat feet up the path. There were his birds, in front of the French doors. And suddenly, looking over their shoulders, he saw the truth. Not looking *in*. Looking *at*. Proud as could be. He bought a polished metal mirror, three feet square (so the pair could enjoy themselves without crowding) and stuck it in his garden. The birds became instant homebodies. *And* highly reflective.

With their trains fanned out, peacocks *are* handsome. But these didn't always spread their fans. The female, moreover, had no display to speak of. Tongues aside, peacocks aren't much to eat. They have ugly feet and when they walk they seem the epitome of gawky, febrile uselessness.

Beauty, however, is only skin deep. Perhaps, I reflected, they have something to be proud of that we don't know about. As if in answer to this thought I ran into a woman just back from a trip to Oklahoma, where she had been a guest at a huge ranch. Along with various structures useful for cattle, the owners had put up a small model of the Petit Trianon, or some such Old World folly, and there were peacocks sashaying around. "Perfect!" the guest gushed to her hostess. "You even have peacocks for authenticity."

"Shoot no, honey," came the reply. "We got the little suckers 'cause they keep down the rattlesnakes."

Handsome is as handsome does. Peacocks, stand tall!

Celebrity Estate Wagon

Enjoy our newly paneled family room.

Welcome to the wagon that's jumped right to number one in wagon sales: our Chevrolet Celebrity. Shown here in the brand-new Estate packaging available this year.

Celebrity's front-drive agility, poise and precision make it a revelation to drive. With its standard electronically fuel-injected engine and new hydraulic mounting system, it's smooth and almost uncannily quiet. Yet no other front-drive wagons give you more room inside.

Come try a 6- or 8-passenger model. We think you'll find Celebrity a beautiful answer to your family room needs.

And at your Chevrolet dealer's, financing or leasing your new Celebrity Wagon is as easy as saying GMAC.

GM
MARK OF EXCELLENCE

Let's get it together...buckle up.

Live it!

TODAY'S CHEVROLET

How dare The Glenlivet be so expensive?

How dare we place such a premium on our 12-year-old Scotch? The same reason great vintage wines and fine champagne cognacs are so expensive. Taste. Just one sip and you'll know that The Glenlivet has a taste that's decidedly superior.

The Glenlivet is Scotland's first and finest single malt Scotch. And, just as it always has been, this 100% Highland malt whisky is distilled from natural spring water and fine malt barley, then aged in oaken casks.

Only The Glenlivet's time-honored methods can achieve this unequaled taste. A taste that sets us apart. Its smoothness, body and bouquet are qualities found only in this unique Scotch.

Of course you may elect to purchase a good Scotch that's less expensive. But for a truly superior taste, you'll have to pay us the greater price.

The Glenlivet

12-year-old unblended Scotch.
About $20 the bottle.

© 1983. THE GLENLIVET DISTILLING CO., N.Y., N.Y.